





Facility Vapor Intrusion Evaluation Summary

Former Bally Engineered Structures Facility Bally Borough, Berks County, Pennsylvania

December 2006

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1. Introduction

On behalf of Sunbeam, Inc. (Sunbeam), ARCADIS G&M, Inc. (ARCADIS) prepared this report to summarize the results of the supplemental facility soil vapor and indoor air investigation conducted at the former Bally Engineered Structures (BES) facility (the facility) between February and October of 2006. The investigation was conducted following the procedures and protocols identified the Revised Facility Vapor Intrusion Investigation Supplemental Workplan for the Bally Groundwater Contamination Superfund Site dated 25 January 2006. The investigation activities were conducted to supplement on-going facility investigations of potential vapor intrusion associated with residual impacts to soil and groundwater from historical operations.

1.1 Project Scope and Objectives

The supplemental facility investigation was aimed at further evaluation of the former BES facility to identify any possible human health risks associated with potential vapor intrusion of site-related Constituents of Potential Concern (COPCs) present in groundwater beneath the buildings. The following samples were collected in support of the supplemental facility investigations completed in 2006:

- A total of 15 indoor air quality (IAQ) samples were collected within the facility:
 - Eight samples were collected in February 2006 which are representative of the time of year when the vapor intrusion rate would be higher;
 - Five samples were collected in August 2006 which are representative of the time of year when the vapor intrusion rate would be lower; and
 - Two samples were collected in October 2006 which are confirmatory samples;
- A total of 15 subslab soil vapor (SV) samples were collected within the facility.
- A total of four ambient air samples (two samples each in March and August of 2006) were collected outside the facility.

This report presents a comparison of the IAQ sample analytical results to the USEPA Region 3 Risk-based Concentrations (RBCs) for ambient air and Pennsylvania

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Department of Environment (PADEP) Act 2 Medium-Specific Concentration for Indoor Air Quality (MSC_{IAQ}) under a non-residential land use.

1.2 Report Organization

In addition to this introduction, this report consists of the following six sections:

- Section 2 presents background information and a summary of historical facility investigations;
- Section 3 presents a summary of the 2004 and 2005 soil vapor intrusion investigations;
- Section 4 presents details of the supplemental soil vapor and indoor air sampling performed in 2006 and a discussion of the laboratory analytical results including data validation;
- Section 5 presents a screening-level human health risk assessment;
- Section 6 presents the summary and conclusions, including recommendations for future activities;
- Section 7 provides the references that were used to develop this report.

2. Background

The former BES facility is located on the southwestern edge of the Borough of Bally, Berks County, Pennsylvania. **Figure 1** presents the site location. The following subsections describe historical site investigations and present a description of the site as it currently exists.

2.1 Site Investigation History

The site was formerly a manufacturing facility for the production of insulated freezer cases. Historic operations included the use of chlorinated compounds to clean and degrease molds, nozzles and small parts used in the manufacturing process. **Figure 2** depicts the facility layout.

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Several phases of soil investigations have occurred at the facility. The first occurred as a series of mobilizations between 1987 and 1989. Soil sampling during this period was conducted using direct push technology at approximately 30 locations. A photoionization detection device (PID) was used to check soil sample headspace for volatile organic compounds (VOCs).

An additional phase of soil sampling was conducted in November 1994, again using direct push technology. This 1994 investigation evaluated approximately 30 additional locations by collecting soil, water, and vapor samples. Soil samples were collected from 3 to 5 different depth intervals in each boring. Water samples were collected at eleven locations and soil gas was only successfully collected at one location. Concentrations of trichloroethene (TCE), 1,1,1-trichloroethane (TCA) and 1,1-dichloroethene (DCE) in the single soil vapor sample were below the detection limits.

In 2003, the USEPA requested further site characterization activities with respect to the risks posed by the potential for vapor intrusion. In October 2003, Sunbeam submitted a workplan to the USEPA to conduct subslab vapor sampling at the facility. This work plan was approved by the USEPA and the subslab vapor sampling was completed in March 2004 under the supervision of USEPA personnel (as for all subsequent events). The results of this investigation were submitted to the USEPA in May 2004, and are reviewed in Section 3 of this report. The USEPA provided comments on the results and a workplan for additional investigation was submitted to the USEPA in March 2005. The March 2005 work plan was approved and the additional investigation was completed in March 2005. The results of this investigation were submitted to the USEPA in June 2005 and are also summarized in Section 3 of this report. On August 9, 2005, Sunbeam, ARCADIS and the USEPA met to discuss the next phase of investigation for the facility. The January 25, 2006 revised facility vapor intrusion supplemental workplan was submitted to the USEPA as a result of the August 2005 meeting. This workplan was approved by the USEPA in a letter dated January 30, 2006. This report addresses the activities conducted in accordance with the revised supplemental workplan.

2.2 Physical Setting

The facility was expanded in several stages, such that the building itself is composed of a number of segments varying in age and construction. Presently the facility is used for several different commercial and industrial purposes, ranging from fabrication and light manufacturing to office space. Some areas have been reconditioned and modified according to the needs of the present tenants. These modifications have not

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been extensively documented but included the installation of raised flooring and electrical/plumbing modifications. For the purpose of this investigation, the facility has been divided into five "work spaces" or building types as described below.

2.2.1 AREA 1: Large Warehouse Area

Based upon previous reports, the southwest portion of this area was formerly used as a lagoon/surface water impoundment. Presently the large warehouse area is occupied by the following operating companies:

- Impress Industries;
- L&Z Public Storage (note: for consistency this area is still referred to as L&Z, however since the last report/investigation, the tenant changed and is currently Luciano and Sons); and
- Hunsinger Plastics (a.k.a. HPE).

The Impress Industries portion of the facility was constructed in stages from approximately 1949-1973. Impress Industries currently uses this building for warehousing and/or storage. The L&Z portion of the facility was constructed in approximately 1969. Note that as of approximately late July 2006 a new tenant occupies the space previously occupied by L&Z Public Storage. The new tenant, Luciano and Sons, produces molded sinks and bathtubs. In order to accommodate the new tenant, a portion of the wall between Impress Industries and the former L&Z Public Storage area was removed and later replaced with drywall. However, significant gaps remain where overhead pipes penetrate the wall. During the August 2006 sampling event, strong odors were noted emanating from this portion of the facility. The odors were apparently strongest in the space occupied by the new tenant (Luciano and Sons). The construction date of the Hunsinger Plastics portion of the facility is approximately 1947.

2.2.2 AREA 2: Older Warehouse Area

The occupied portion of this area of the facility is presently used for storage of safety supplies. The occupants of this portion of the facility include:

Stauffer Manufacturing Company, Inc.; and

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Ram Motors (listed as occupant, the space remains unoccupied).

Ram Motors is a separate building of similar construction and age as Stauffer Manufacturing. The construction date of the Stauffer portion of the facility is approximately 1947.

2.2.3 AREA 3: Former Plant Area

Based on previous reports, the former degreasing area of the original Bally Engineered Structures facility was located in this area. The two businesses operating in this portion of the facility at this time are:

- Great American Weaving Corporation (GAWC); and
- Gregory Woodworking.

GAWC and Gregory Woodworking are separated by a wall, with a man door connecting the two areas. The construction date of this portion of the former BES facility is approximately 1934.

2.2.4 AREA 4: Back Building (Northwest Warehouse Building)

Based on previous reports, historic source areas have not been identified in the northwest warehouse building. The businesses currently operating in this area are:

- T&G Packaging; and
- Cutting Edge (wood products, formerly S&W Metals).

The Northwest building was constructed after 1977 and is presently used for light manufacturing. It is separated into three segments by large bay doors that are typically left open. Additionally, large bay doors to the outside of the building are often left open, allowing free exchange of indoor and outdoor air. This building is pre-fabricated metal over an asphalt/concrete slab.

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2.2.5 AREA 5: Office Building

Based upon previous reports, the basement of the office building overlies an area where lagoons or pits formerly existed. The businesses currently operating in this area are:

- Condict and Co. (office);
- Hunsinger Plastics (office); and
- Curves (workout center).

This building was constructed in approximately 1970. The office areas consist of improved areas that have carpeted/tiled floors, finished wall systems, and drop ceilings. Heating and air conditioning are provided by a central forced air system and/or direct vent window/wall units. Ceiling heights are approximately 8 to 10 feet. Basement underlies about one-third of the building footprint, this is the only basement present on the site. The basement has a competent concrete floor and contains two sealed sumps that collect water and pump it to grade level.

The manufacturing and storage areas, including Areas 1, 2, 3 and 4, contain competent concrete floors, have ceiling heights ranging from approximately 15 to 25 feet, generally are not insulated, and are heated using direct vent natural gas-fired units. Ventilating fans were also noted in several areas of the building. Large bay doors are located in each of these areas to provide ready access to the building.

3. Previous Vapor Intrusion Investigations

This section presents the results of the previous vapor intrusion investigations that were conducted in 2004 and 2005 at the request of the USEPA. The results of these investigations were used to identify the location and number of samples collected in the 2006 investigation.

3.1 2004 Soil Vapor Sampling

Four subslab vapor samples (SV-1 through SV-4) were collected from locations within the former BES facility in March and April of 2004. The sample locations are shown on **Figure 3**. **Table 1** presents the COPCs analyzed as part of the investigation and the shallow soil gas screening levels, based on a 1x10⁻⁶ risk level, identified in USEPA

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guidance (2002). TCE is the primary COPC at the BES facility. A summary of the results which were provided to the USEPA in a May 5, 2004 summary letter are provided below:

- Samples SV-1 and SV-2 had TCE concentrations of 130 and 140 ug/m3, respectively.
- Samples SV-3 and SV-4 had TCE concentrations of 13,000 and 6,100 ug/m3, respectively.
- The other COPCs, with the exception of vinyl chloride (VC), were detected in the samples but were at concentrations below the shallow soil gas screening levels (USEPA, 2002).
- VC was not detected in any samples.

3.2 2005 Tracer Gas Investigation

In March 2005, five additional subslab vapor samples, TG-1 through TG-5, were collected and analyzed for the COPCs. The results are presented on **Table 2**. A duplicate sample was collected at location TG-5. The sample locations are shown on **Figure 3**. A summary of the results which were provided to the USEPA in a June 30, 2005 summary letter are provided below:

- TCE was detected in all of the samples at concentrations ranging from 2 ug/m3 (TG-4, collected from the suspected former location of the dip tank) to 39,000 ug/m3 (TG-5, collected from T&G Packaging).
- 1,1,1-TCA and 1,1-DCE were also detected in several samples. 1,1-DCE was the
 only other COPC detected above the USEPA shallow soil-gas screening level, at
 79,000 ug/m3 at TG-5. The March 2005 results were reported in a June 30, 2005
 summary letter to the USEPA.

4. 2006 Supplemental Soil Vapor / Indoor Air Sampling

The 2006 supplemental sampling events include three separate events in which subslab vapor and/or indoor air samples were collected.

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Nine subslab vapor samples, eight indoor air samples, two ambient air samples, and four quality assurance duplicate samples were collected in February 2006 and analyzed for the site-specific COPCs listed in **Table 1**, to evaluate the potential for vapor intrusion.

In August 2006, six subslab vapor samples, five indoor air samples, two ambient air samples, and one quality assurance duplicate sample were collected and analyzed for the site-specific COPCs listed in **Table 1**, to evaluate the potential for vapor intrusion.

Finally, in October 2006 two additional indoor air samples were collected in Area 1.

The following subsections present the sample collection methodology and the laboratory analytical results.

4.1 Sampling Location and Rationale

The following points describe the samples collected during each of the three 2006 sampling events and the basis for selecting each location. The sample locations and results are shown on **Figure 4**.

AREA 1 - Large Warehouse Area

February 2006

Samples collected: IAQ-1/SV-4B, IAQ-4/SV-5, SV-9 and SV-10.

TCE was previously detected in subslab samples collected beneath Area 1 at concentrations of 6,100 ug/m³ (SV-4 in 2004) and 17,000 ug/m³ (TG-1 in 2005) in the southwestern portion of the Impress Industries space. The middle and eastern portions of the Area 1 were not assessed in either 2004 or 2005. Therefore, the locations of SV-9 and SV-10 were selected for investigation because of their proximity to the former northern lagoon area and former small parts degreasing area, respectively.

August 2006

Samples collected: IA-A-1/SS-A-1, IA-A-2/SS-A-2, and SS-A-3.

Three SV samples were collected to further characterize subslab COPC concentrations which were detected in the warehouse area during the February 2006 event. Corresponding IAQ samples were collected at two of the SV sample locations to characterize indoor air concentrations of COPCs and to evaluate the

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potential for vapor intrusion. A corresponding IAQ sample was not collected at SS-A-3 because the room had open 5 gallon buckets, 30 gallon and 55 gallon drums as well as smaller containers possibly containing volatile liquids, which would have impacted results if a sample was collected. It is noted that strong odors, which were most prominent in the Luciana and Sons area, were noticed during this event.

October 2006

Samples collected: IA-A-1-101206, and IA-A-3-101206.

Two additional indoor air samples were collected. IA-A-1-101206 was collected to confirm the TCE concentration detected in indoor air at Impress Industries in August 2006. IA-A-3-101206 was collected within Impress Industries to further characterize indoor air concentrations in the vicinity in which the open containers were present during the August 2006 sampling event in the Luciano and Sons area.

AREA 2 - Older Warehouse Area

February 2006

Samples collected: IAQ-2/SV-3B.

An IAQ/SV sampling pair was collected in this area to further evaluate TCE detections of 290 and 13,000 ug/m³ in previously collected subslub vapor samples in the Stauffer portion of the facility.

AREA 3 - Former Plant Area

February 2006

Samples collected: IAQ-7/SV-11.

The portion of the building occupied by Gregory Woodworking had not been previously assessed.

August 2006

Samples collected: IA-A-4/SS-A-4.

An IAQ/SV sampling pair was collected in this area to further evaluate the potential for TCE vapor intrusion based on a subslab vapor sample (SV-11) collected in February 2006 in which 110,000 ug/m³ TCE was detected.

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AREA 4 - Back Building (IAQ-5/SV-7 and IAQ-6/SV-6).

February 2006

Samples collected: IAQ-5/SV-7 and IAQ-6/SV-6.

Although historic source areas have not been identified in the northwest warehouse building, subslab concentrations of COPCs above the screening levels were detected here in March of 2005. As a result, additional sampling was conducted.

August 2006

Samples collected: IA-A-5/SS-A-5, and IA-A-6/SS-A-6.

These paired samples were collected in the vicinity where TCE was detected in two subslab vapor samples (TG-5 and SV-7) at a maximum concentration of 48,000 ug/m³, but was not detected in a nearby subslab sample (SV-6).

AREA 5 - Office Building

February 2006

Samples collected: IAQ-3A/IAQ-3B and SV-8.

A subslab vapor sample collected from the basement in March 2005 had 9.6 ug/m³ TCE. As a result, additional subslab vapor samples were collected. Indoor air samples from both the ground floor and the basement were collected in order to investigate air quality throughout the building.

4.2 Sample Collection Methodology

Samples were collected in accordance with the SOPs included in **Appendix A**. Portions of the procedures, such as checking initial and final vacuums, are dictated by laboratory procedure. In all cases the IAQ samples were collected prior to collecting the SV samples. A summary of the sample collection methods for IAQ samples and SV samples is presented below.

4.2.1 IAQ Collection Methodology

Before the initiation of the IAQ sampling, the sample location, date, time, weather, atmospheric pressure, Summa™ canister number and flow controller number were recorded on the IAQ sampling log. Initial canister vacuum was verified and noted prior to collecting samples.

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To sample over an eight hour period, a flow restrictor was connected to the top of a 6-L Summa™ canister. Samples were collected at an elevation within the normal breathing zone of building occupants. This was accomplished by either setting the canister on a shelf, or attaching tubing to the flow controller and securing the opposite end several feet above the ground surface. After the eight hour collection period, the final vacuum was verified and recorded on the IAQ sampling log and canister tag. Sample logs are provided in **Appendix B**.

Following completion of sampling activities, the 6-L Summa™ canisters were appropriately packaged, sealed, and sent back to Air Toxics for analysis. Chain of custody forms were completed and included in each shipment.

4.2.2 SV Collection Methodology

The sample apparatus was assembled prior to drilling holes in the building slab. Sampling equipment included a stainless steel probe, Tedlar bag, flow controller, 6-L Summa™ canister, inert flexible tubing and associated inert unions, clamps, valves and other necessary components. Initial canister vacuum measurements were recorded prior to collecting samples.

A hammer drill was used to drill a 3/8-inch diameter hole in the slab at each location. After breaking through the slab, the drill bit was advanced approximately three inches further into the subsurface material. Cuttings produced during drilling were periodically swept away from the top of the hole. Drill cuttings were removed from the surface around the hole with a clean, damp sponge, prior to inserting the probe. The probe was allowed to "float" within the slab, sealed and secured using an inert clay material. The clay material provided an air-tight seal to the ground surface around the boring and the probe, and was also used to ensure an air-tight seal between the probe and the tubing.

After each sampling apparatus was assembled, the sampling connections were checked before purging air. Approximately 2 liters of subslab air were purged from each sample location using a sampling pump. The purge volume was selected based upon the approximate volume of the sample apparatus. The purged air was collected in Tedlar bags and evacuated outside of the facility. The purge rate was approximately 200 cubic centimeters per minute (cm³/min). The purge time and amount were recorded for each sample.

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Following purging, the connection to the pump was clamped off to prevent cross-contamination during the sample collection. Subslab vapor samples were then collected in certified clean 6-L SummaTM canisters equipped with flow regulators to limit the intake rate to approximately 200 cm³/min. Canisters were monitored during the 30 minute period required for sample collection. Final vacuums were recorded on the sample log sheet at the end of the sampling period. Sample locations, canisters and times were recorded on sample log sheets.

Following completion of sampling activities at each location, the sampling equipment was disassembled, and clay material was removed from the concrete surface. The 6-L SummaTM canisters were appropriately packaged, sealed, and sent back to Air Toxics for analysis. Chain of custody forms were completed and included in each shipment. The boring holes were sealed using a concrete patching compound. The filler material was packed into the holes using a wooden dowel rod, to restore the hole to the original concrete slab surface grade. Photographs of the sampling locations were taken to document restoration of the concrete slab.

4.3 Analysis and Results

The results of the February, August, and October 2006 sampling events are presented in detail in this section. Results of previous sampling rounds are discussed and compared to the most recent data. Indoor air results are also compared to the ambient air RBC value, as an initial screening mechanism. More detailed risk calculations, in the subsequent section, build on these results.

4.3.1 Analysis Method

The indoor air, ambient air, and subslab vapor samples collected from the facility were submitted to Air Toxics Limited for gas chromatography/mass spectroscopy (GC/MS) analysis by modified TO-15 for the COPCs listed in **Table 1**.

Subslab vapor samples were analyzed by the low-level TO-15 method and indoor/ambient air samples were analyzed by the SIM TO-15 method, with reporting limits as noted in **Table 1**. All results were reported according to the laboratory Reporting Limit (RL). Concentrations presented in parts per billion volume (ppbv) were converted to micrograms per cubic meter using the following equation:

 $ug/m^3 = (ppbv \times molecular weight)/24.45$

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where 24.45 is the molar volume of air, in liters, at 25°C and 760 torr.

4.3.2 Results

The IAQ and SV results are provided in **Table 2**. For the purpose of evaluating indoor air sample analytical results, observed concentrations were compared to:

- USEPA (2006) Region 3 Risk-based Concentrations (RBC) for ambient air under a residential land-use; and
- PADEP (2004) Act 2 Medium-Specific Concentration for Indoor Air Quality (MSC_{IAQ}) under a non-residential land use;

There are known uncertainties associated with the screening levels associated with assumptions used to calculate them. These uncertainties include:

- USEPA Region 3 RBCs for ambient air are based on residential exposures.
- The RBC for TCE was calculated using the most conservative cancer slope factor
 of the available range established by NCEA (2001). This is further discussed in
 Section 5.2 below.
- PADEP TCE MSCIAQ is based on a withdrawn toxicity value and 1E-5 cancer risk.

4.3.2.1 Area 1: Impress Industries

Four rounds of soil vapor samples (SV-4, TG-1, SV-4B, SS-A-1) and three rounds of indoor air samples (IAQ-1, IA-A-1, IA-A-1-101206) have been collected over a two year period from the southern portion of the building currently occupied by Impress Industries. Two of the indoor air samples and subslab samples were co-located (IAQ-1/SV4B and IA-A-1/SS-A-1), and all of the samples were collected in the same general location (i.e., above the former Southern Lagoon area). Soil vapor samples were also collected from the center of the building in 2006 (SV-9) and from the northern portion of the building (SV-1) in 2004.

During the soil vapor sampling, the flooring was observed to be approximately 14-inch-thick competent concrete. TCE was detected in all of the subslab soil vapor samples collected in this building; however, concentrations observed in the samples collected from the center (SV-9 at 11 ug/m³) and northern portion of the building (SV-1 at 130

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ug/m³) were not high enough to result in unacceptable indoor air concentrations based on the attenuation factors predicted using the results of the March 2005 investigation.

In the southern portion of the building, in the vicinity of what was previously the southern lagoon, TCE was detected in all four subslab soil vapor samples at concentrations ranging from 6,100 ug/m³ to 210,000 ug/m³. TCE was also detected in all three IAQ samples at concentrations ranging from 40 ug/m³ to 280 ug/m³. These concentrations are greater than the ambient air RBC for TCE (0.016 ug/m³). In addition, TCE concentrations in two of the three IAQ samples (180 ug/m³ at IA-A-1 and 280 ug/m³ in IA-A-1-101206) were greater than the PADEP non-residential MSC_{IAQ} for TCE (48 ug/m³). 1,1,1-TCA, 1,1-DCE, and cis-1,1-dichloroethene were also detected in at least one indoor air sample, but the concentrations were less than their respective ambient air RBCs and non-residential MSC_{IAQ}s.

An additional indoor air sample (IA-A-3-101206) was collected in the northeastern portion of Impress Industries near the wall shared with the former L&Z Public Storage area (currently occupied by Luciano and Sons). This sample was collected to characterize indoor air concentrations near which the open containers were present during the August 2006 sampling event. As noted above, significant gaps in the drywall separating Impress Industries and the L&Z Storage area are present where overhead pipes penetrate the wall. In addition, odors emanating from the L&Z Storage area were apparent in this portion of Impress Industries. Therefore, the indoor air sample collected at this location is representative of indoor air within the former L&Z Storage area, and results are discussed below.

The concentration of TCE in indoor air has steadily increased in the southern portion of Impress Industries during each of the three sampling events in this area: from 40 ug/m³ in February to 180 ug/m³ in August to 280 ug/m³ in October. This area is connected with the other portions of the building and the increase in TCE concentrations observed may be associated with new operations in the area of the building that was formerly occupied by L&Z Public Storage as discussed below.

4.3.2.2 Area 1: L&Z Public Storage

Two subslab soil vapor samples (SV-5, SS-A-3) and one indoor air sample (IAQ-4) was collected from this portion of the main building in February 2006. Indoor air sample IAQ-4 was co-located with the subslab soil vapor sample SV-5 in the central portion of the space. During the subslab soil vapor sampling, the flooring was observed to be approximately 14-inch-thick competent concrete.

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TCE was detected in both of the subslab soil vapor samples at concentrations of 2,600 ug/m³ in SV-5 and 3,000 ug/m³ at SS-A-3. The concentration of TCE at IAQ-4 (48 ug/m³) is greater than the ambient air RBC (0.016 ug/m³); however, it is equal to the non-residential MSCIAQ (48 ug/m³). 1,1,1-TCA and 1,1-DCE were also detected in the indoor air sample, but the concentrations were below their respective ambient air RBCs and non-residential MSC_{IAQ}s.

As noted above, IA-A-3-101206 was collected within the Impress Industries area, but results are representative of indoor area within L&Z Public Storage. The TCE concentration at IA-A-3-101206 (490 ug/m³) is greater than both the ambient air RBC (0.016 ug/m³) and the non-residential MSCIAQ (48 ug/m³). 1,1,1-TCA and 1,1-DCE were also detected in the indoor air sample, but the concentrations were below their respective ambient air RBCs and non-residential MSC_{IAQ}s.

There has been a 10-fold increase of TCE concentrations in indoor air between February 2006 (48 ug/m³) and October 2006 (490 ug/m³). As noted in Section 2.2.1 above, L&Z Public Storage no longer occupies this area. Luciano and Sons began occupying this space in August 2006. The appearance of the strong odor and the increase in the indoor air concentrations of TCE coincides with the change of tenants and operational use of the area.

4.3.2.3 Area 1: Hunsinger Plastics

Two subslab soil vapor samples (SV-10 and SS-A-2) and one indoor air sample (IA-A-2) was collected in 2006. Indoor air sample IA-A-2 was co-located with the subslab soil vapor sample SS-A-2 in the central portion of the space. The concentration of TCE in SV-10 and SS-A-2 was 490 ug/m³ and 350 ug/m³, respectively. The concentration of TCE at IA-A-2 (3.8 ug/m³) is greater than the ambient air RBC (0.016 ug/m³); however, it is less than the non-residential MSCIAQ (48 ug/m³). 1,1,1-TCA and 1,1-DCE were also detected in the indoor air sample, but the concentrations were less than their respective ambient air RBCs and non-residential MSC_{IAO}s.

4.3.2.4 Area 2: Stauffer Manufacturing Company, Inc.

Three subslab vapor samples (TG-2, SV-3, SV-3B) and one indoor air sample (IAQ-2) have been collected in this portion of the main building. During the soil vapor sampling, the flooring was observed to be approximately 8-inch-thick competent concrete with wood slats overlying the concrete in some portions of the building.

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The TCE concentrations observed in subslab soil vapor have oscillated over time, from 13,000 ug/m³ in 2004, to 290 ug/m³ in 2005, to 4,200 ug/m³ in 2006. TCE was detected at 2.5 ug/m³ in the indoor air sample (IAQ-2) which is greater than the ambient air RBC (0.016 ug/m³), but less than non-residential MSCIAQ (48 ug/m³). 1,1,1-TCA and 1,1-DCE were detected in the indoor air sample, but the concentrations were less than their respective ambient air RBCs and non-residential MSCIAQs.

4.3.2.5 Area 3: Gregory's Woodworking

Two subslab soil vapor/indoor air sample pairs (SV-11/IAQ-7 and SS-A-4/IA-A-4) were collected in 2006. During the subslab soil vapor sampling, the flooring was observed to be approximately 3-inch-thick competent concrete.

The TCE concentration observed in the subslab soil vapor collected in February 2006 was 110,000 ug/m³, but the TCE concentration in the co-located indoor air sample (average of IAQ-7 and IAQ-7DUP) was only 0.44 ug/m³. The subslab soil vapor concentration in SS-A-4, which was collected in October 2006 and in close proximity to SV-11, was 4.6 ug/m³. TCE in the co-located indoor air sample (IA-A-4) was 0.35 ug/m³. Although the TCE concentrations observed in both indoor air samples are greater than the ambient air RBC (0.016 ug/m³), they are less than the non-residential MSC_{IAQ} (48 ug/m³). 1,1,1-TCA and 1,1-DCE were detected in IA-A-4 (they were not detected in IAQ-7 or its duplicate), but the concentrations were less than their respective ambient air RBCs and non-residential MSC_{IAQ} s.

4.3.2.6 Area 4: Back Building (Northwest Warehouse Building)

Five subslab soil vapor samples (TG-5, SV-6, SV-7, SS-A-5, and SS-A-6) and four indoor air samples (IAQ-5, IAQ-6, IA-A-5, and IA-A-6) have been collected from the building located northwest of the main facility. TCE was detected in four of the five subslab soil vapor samples at concentrations ranging from 3.8 ug/m³ (SS-A-6) to 48,000 ug/m³ (SV-7). TCE was not detected in SV-6. During the subslab soil vapor sampling, the flooring was observed to be approximately 12-inch-thick competent concrete and/or asphalt.

TCE was detected in all four indoor air samples at concentrations ranging from 1 ug/m³ (IA-A-6) to 7.7 ug/m³ (IAQ-5), which are greater than the ambient air RBC (0.016 ug/m³). However, the observed concentrations of TCE were less than the non-residential MSC_{IAQ} (48 ug/m³). 1,1,1-TCA and 1,1-DCE were also detected all four

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indoor air samples, but the concentrations were less than their respective ambient air RBCs and non-residential MSC_{IAQ}s.

4.3.2.7 Area 5: Office Building

Two subslab soil vapor samples (TG-3 and SV-8) and two indoor air samples (IAQ-3A and IAQ-3B) have been collected from the office building. Indoor air sample IAQ-3A and subslab soil vapor sample SV-8 were co-located in the building basement. Indoor air sample IAQ-3B and its duplicate (IAQ-3B Dup) were collected on the ground floor, above the basement sample location. During the subslab soil vapor sampling, the flooring was observed to be approximately 2-inch-thick competent concrete.

TCE concentrations in the subslab soil vapor samples were 9.6 ug/m³ in TG-3 (collected in March 2005) and 9.1 ug/m³ in SV-8 (collected in February 2006). TCE was detected in indoor air samples at concentrations of 1.4 ug/m³ (IAQ-3B) and 2.9 ug/m³ (IAQ-3A). The observed TCE concentration in indoor air is greater than the ambient air RBC (0.016 ug/m³), but less than the non-residential MSC_{IAQ} (48 ug/m³). 1,1,1-TCA and 1,1-DCE were also detected in at least on indoor air sample; however, the concentrations were less than their respective ambient air RBCs and non-residential MSC_{IAQ}s.

4.4 Data Validation Summary

The purpose of the data validation is to determine the reliability of the chemical analyses and the accuracy and precision of data generated by the laboratory for the recent data collected. The quality of laboratory data was evaluated by comparison to a set of quality control criteria, including precision, accuracy, and completeness.

Six analytical data packages were generated by the laboratory for the February samples, three were generated for the August samples, and one was generated for the October samples. The laboratory reports were reviewed for completeness and compliance with the deliverable requirements. Level 4 data packages were complete upon receipt and are provided electronically as **Appendix C**. Method blanks were prepared and analyzed in conjunction with the field samples to monitor potential contamination impacts during analysis. No target compounds were detected in any of the method blanks. Laboratory controls samples (LCSs) were included with each analytical batch to establish method control within the laboratory environment. All LCSs associated with project samples were acceptable. Field duplicates were collected to evaluate precision of sample collection as well as analytical method

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performance. The relative percent differences of chemical concentrations observed in the primary and duplicate samples were within control limits.

Based on the data validation, the data gathered under this investigation meet the project and analytical data quality objectives. One hundred percent of the samples were analyzed as collected and as requested on the chains of custody or corrected through communication with the project chemist. The data are considered to be of known and documented quality. One hundred percent of the data generated are usable for the intended purpose as qualified during the review and verification assessment. Data validation reports are provided in **Appendix D**.

5. Screening Level Human Health Risk Assessment

This screening level human health risk assessment (HHRA) characterizes potential risks in a manner consistent with the risk assessment principles and practices established by the U.S. Environmental Protection Agency (USEPA) Risk Assessment Guidance for Superfund (RAGS) (USEPA, 1989), and subsequent USEPA guidance (USEPA, 1991; 1997; 2002; and 2003).

Potential risks and hazards were calculated using the constituent concentrations observed in indoor air samples as presented in the previous section.

5.1 Exposure Factors

With the exception of the Stauffer Manufacturing Company area, the main building is regularly frequented by site workers throughout the day storing and retrieving items. Therefore, the following site-specific exposure factors were selected:

- Inhalation rate of 1.6 m³/hour based on moderate activity level (USEPA, 1997);
- Exposure time of 8 hours per day (professional judgment);
- Exposure frequency of 250 days per year (USEPA, 1991);
- Exposure duration of 25 years (USEPA, 1991);
- Body weight of 70 kg (USEPA, 1989); and

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- Averaging time for cancer effects of 25,550 days based on a 70-year average lifespan (USEPA, 1989);
- Averaging time for non-cancer effects of 9,125 days based on a 25-year exposure duration (USEPA, 1989).

5.2 Toxicity Values

Human health risk assessment is based on two general categories of toxic effects—non-carcinogenic and carcinogenic. Constituent-specific toxicity values are used to calculate potential risks for these two types of effects. Following USEPA (2003) guidance, the constituent-specific toxicity values used to evaluate potential non-carcinogenic and carcinogenic effects were compiled following the recommended toxicity value hierarchy as follows:

- Tier 1: USEPA's Integrated Risk Information System (IRIS) (IRIS, 2006);
- Tier 2: USEPA's Provisional Peer Reviewed Toxicity Values (PPRTVs); and
- Tier 3: Other toxicity values including USEPA and non-USEPA sources of toxicity information.

Based on the above criteria, the following toxicity values were used in this screening level HHRA.

Chemical	Inhalation Cancer Slope Factor (mg/kg/day) ⁻¹	Inhalation Reference Dose (mg/kg/day)
Trichloroethene	0.02 - 0.4	0.01
1,1,-Dichloroethene	NA	0.06
1,1-Dichloroethane	NA	0.14
cis-1,2- Dichloroethene	NA	NA
1,1,1- Trichloroethane	NA	0.63
Vinyl chloride	0.015	0.028

NA - Not available

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For 1,1,1-TCA, potential non-cancer hazards were calculated using a provisional reference concentration available through NCEA, which expired in August 2005 and retired from the PPRTV in October 2005 (STSC, 2003). For TCE, potential risks were calculated using both the upper and lower end of the range of cancer slope factors for the inhalation pathway of 0.02 to 0.4 per mg/kg/day (NCEA, 2001).

5.3 Risk Characterization

The following subsections summarize the potential risks and hazards calculated for each area of the facility using the information presented above. Samples were collected in the winter, when vapor intrusion would be expected to be higher, and in the summer, when vapor intrusion would be expected to be lower. Thus, averaging samples collected during these two seasons will provide a more realistic exposure point concentration. Therefore, in areas where more than one indoor air sample was collected, the average indoor air concentration was used to calculate potential risks and hazards. Note that potential risks and hazards were not calculated for exposure to VOCs in indoor air at the Impress Industries and L&Z Public Storage areas. As discussed above, the concentration of TCE in indoor air increased significantly during 2006 and the increase appears to be related to the current operational use of the former L&Z Public Storage area.

5.3.1 Area 1: Hunsinger Plastics

Using the average constituent concentrations detected in the indoor air samples, the potential incremental cancer risk ranges from 3E-6 to 7E-5, which is within the target risk range established by USEPA (1991) of 1E-6 to 1E-4. TCE is the only chemical contributing to the potential incremental cancer risk. The non-cancer hazard index is less than one (HI=0.05), indicating that adverse non-cancer effects are unlikely.

5.3.2 Area 2: Stauffer Manufacturing Company, Inc.

Using the average chemical concentrations detected in the indoor air samples, the potential incremental cancer risk ranges from 2E-6 to 4E-5, which is within the target risk range established by USEPA (1991) of 1E-6 to 1E-4. TCE is the only chemical contributing to the potential incremental cancer risk. The non-cancer hazard index is less than one (HI=0.03), indicating that adverse non-cancer effects are unlikely.

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5.3.3 Area 3: Gregory's Woodworking

Using the average chemical concentrations detected in the indoor air samples, the potential incremental cancer risk ranges from 4E-7 to 7E-6, which ranges from less than to within the target risk range established by USEPA (1991) of 1E-6 to 1E-4. TCE is the only chemical contributing to the potential incremental cancer risk. The non-cancer hazard index is less than one (HI=0.005), indicating that adverse non-cancer effects are unlikely.

5.3.4 Area 4: Back Building

5.3.4.1 T.G Packaging

Using the average chemical concentrations detected in the indoor air samples, the potential incremental cancer risk ranges from 7E-6 to 1E-4, which is within the target risk range established by USEPA (1991) of 1E-6 to 1E-4. TCE is the only chemical contributing to the potential incremental cancer risk. The non-cancer hazard index is less than one (HI=0.2), indicating that adverse non-cancer effects are unlikely.

5.3.4.2 S&W Metals

Using the average chemical concentrations detected in the indoor air samples, the potential incremental cancer risk ranges from 3E-6 to 6E-5, which is within the target risk range established by USEPA (1991) of 1E-6 to 1E-4. TCE is the only chemical contributing to the potential incremental cancer risk. The non-cancer hazard index is less than one (HI=0.1), indicating that adverse non-cancer effects are unlikely.

5.3.5 Area 5: Office Building

Using the commercial/industrial exposure factors identified above, the potential incremental cancer risk ranges from 2E-6 to 4E-5, which is within the target risk range established by USEPA (1991) of 1E-6 to 1E-4. TCE is the only chemical contributing to the potential incremental cancer risk. The non-cancer hazard index is less than one (HI=0.03), indicating that adverse non-cancer effects are unlikely.

6. Summary and Conclusions

The supplemental investigation performed by ARCADIS in 2006 evaluated the potential impacts to indoor air quality from vapor intrusion. A total of 15 subslab soil

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vapor and indoor air quality samples were collected between February and October 2006. TCE and several other COPCs, were identified the indoor air samples in all areas of the facility. During the August and October sampling events, strong odors were being emitted from the former L&Z Storage area and could be identified in the Impress industries area. The indoor air samples collected in August and October 2006 reflected an increase in the TCE concentrations. The suspected source of the increase in TCE is the current operations at the former L&Z Storage area. The assessment of potential risks associated with the increase TCE concentrations associated with the current operations of the new tenant is beyond the scope of this investigation.

The potential cancer risk and non-cancer hazard associated with exposure via inhalation of volatile COPCs in the subsurface migrating to indoor air at all areas of the facility, except Impress Industries and the former L&Z Storage area, were calculated. Results indicate that concentrations of COPCs present in the subsurface do not pose an unacceptable risk to site workers via inhalation of indoor air.

7. References

- Pennsylvania Department of Health and Environment (PADEP). July 2004. Final Draft Guidance on Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard. Publication 253-0300-100.
- National Center for Environmental Assessment (NCEA). 2001. Trichloroethylene Health Risk Assessment: Synthesis and Characterization (External Review Draft). U.S. Environmental Protection Agency, Office of Research and Development, National Center for Environmental Assessment, Washington Office, Washington, DC. EPA/600/P-01/002A. 2001.
- Superfund Health Risk Technical Support Center (STSC). 2003. PPRTV Derivation Support Document for 1,1,1-Trichloroethane (CASRN. 71-55-6). 98-025/8-03). August.
- U.S. Environmental Protection Agency (USEPA). 1989. Risk Assessment Guidance for Superfund (RAGS): Volume I Human Health Evaluation Manual (Part A). EPA/540/1 89/002. December.

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- U.S. Environmental Protection Agency (USEPA). 1997. Exposure Factors Handbook: I, II, and III. EPA/600/P 95 002Ba, Bb, and Bc. Science Advisory Board Review Draft. August.
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- U.S. Environmental Protection Agency (USEPA). 2003. Human Health Toxicity Values in Superfund Risk Assessments. OSWER Directive 9285.7-53.
- U.S. Environmental Protection Agency (USEPA). 2006. Region 3 Risk-based Concentration Table. October.

Table 1. Summary of Site Specific COPCs Former BES Facility Bally, Pennsylvania

Air Toxics Reporting Limits

Constituent of Potential Concern (COPC)	CAS No.	Low-Level Analysis (ug/m³)	SIM analysis (ug/m³)	Shallow Soil Gas Screening Level (USEPA, 2002) (ug/m³)
1,1-Dichloroethane	75-01-4	0.1	0.02	5000
1,1-Dichloroethene	75-34-3	0.1	0.01	2000
cis-1,2-Dichloroethene	75-35-4	0.1	0.02	350
1,1,1-Trichloroethane	156-59-2	0.1	0.02	22,000
Trichloroethene	71-55-6	0.1	0.02	0.22
Vinyl Chloride	79-01-6	0.1	0.01	2.8

Notes:

Laboratory reporting limits may not be achievable under all conditions.

Table 2. Summary of Facility Subslab Soil Vapor and Indoor Air Results Former BES Facility Bally, Pennsylvania

Location	Sample ID	Sample Date	Medium	Trichloroethene	1,1,-Dichloroethene	1,1-Dichloroethane	cis-1,2-Dichloroethene	1,1,1-Trichloroethane	Vinyl chloride
0	USEPA Region 3 Ambient Air RBC Residential			0.016	220	510	37	1000	0.072
Screening Levels	PADEP Indoor Air MSC _{IAQ} Nonresidential			48	580	510	100	6,100	9.5
	SV-1	4/7/2004	SV	130	500	1.1	0.89	260	<0.23
	SV-4	4/7/2004	SV	6,100	<22	<70	<22	<67	<14
	TG-1	3/23/2005	SV	17,000	34 J	<35	<35	<48	<22
	SV-4B	2/4/2006	SV	210,000	<590	<600	<590	<810	<380
Area 1: Impress	IAQ-1	2/4/2006	IA	40	3.6	<0.13	< 0.13	5.4	< 0.041
Industries	SV-9	2/28/2006	sv	11	< 0.55	< 0.56	< 0.55	0.78	< 0.36
moustries	SS-A-1	8/30/2006	sv	14000	<34	<35	49	69	<22
	SS-A-1 (dup)	8/30/2006	SV	9300	<26	<27	29	54	<17
	IA-A-1	8/28/2006	IA	180	62	<0.18	0.18	100	<0.056
	IA-A-1-101206	10/12/2006	IA	280	43	< 0.65	< 0.64	44	< 0.41
	IA-A-3-101206	10/12/2006	IA	490	150	<1.2	<1.2	170	<0.75
Area 1: Hunsinger	SV-10	2/28/2006	SV	490	<4.1	9.0	740	370	<2.6
Plastics	SS-A-2	8/30/2006	SV	350	6.0	2.5	200	100	<0.70
Flastics	IA-A-2	8/28/2006	IA	3.8	1.3	< 0.13	<0.12	1.6	< 0.040
	SV-5	2/28/2006	SV	2,600	580	<6.5	<6.3	22	<4.0
Area 1: L&Z Public	SV-5Dup	2/28/2006	SV	2,600	590	<6.2	<6.0	23	<3.9
Storage	IAQ-4	2/24/2006	IA	48	7.4	<0.13	<0.13	8.4	< 0.041
	SS-A-3	8/30/2006	SV	3000	240	<11	<11	21	<7.0
	TG-5	3/23/2005	SV	39,000	79,000	<120	<35	<48	<22
•	SV-7	2/27/2006	SV	48,000	100,000	<300	<300	51,000	<190
Area 4: T.G. Packaging	IAQ-5	2/24/2006	IA	7.7	37	<0.18	<0.18	13	<0.057
	SS-A-5	8/29/2006	SV	47,000	79000	<230	<220	52000	<140
	IA-A-5	8/28/2006	IA	7.4	19	<0.12	<0.12	9.6	<0.038
	SV-6	2/27/2006	SV	<0.76	<0.56	< 0.57	<0.56	<0.77	<0.36
	IAQ-6	2/24/2006	IA	5.1	53	< 0.14	<0.14	19	<0.046
Area 4: S&W Metals	IAQ-6Dup	2/24/2006	IA	5.2	52	<0.14	<0.14	20	<0.46
	SS-A-6	8/29/2006	SV	3.8	0.84	<0.56	< 0.55	5.1	<0.36
	IA-A-6	8/28/2006	IA	1	3.3	<0.13	<0.13	2.3	< 0.041
	TG-3	3/24/2005	SV	9.6	<0.063	<0.13	<0.14	0.95	<0.04
	SV-8	2/28/2006	sv	9.1	<0.58	<0.59	<0.58	<0.80	< 0.37
Area 5: Office Area	IAQ-3A	2/24/2006	IA (Basement)	2.9	0.065	<0.13	<0.12	0.38	< 0.043
	IAQ-3B	2/24/2006	IA (1st Floor)	1.4	<0.067	<0.14	<0.13	0.38	< 0.043
	IAQ-3B Dup	2/24/2006	IA (1st Floor)	1.4	0.07	<0.14	<0.13	0.4	< 0.043
Former Test Coolers	SV-2	4/7/2004	SV	140	180	2.1_	3.6	560	<0.14

Table 2. Summary of Facility Subslab Soil Vapor and Indoor Air Results Former BES Facility Bally, Pennsylvania

Location	Sample ID	Sample Date	Medium	Trichloroethene	1,1,-Dichloroethene	1,1-Dichloroethane	cis-1,2-Dichloroethene	1,1,1-Trichloroethane	Vinyl chloride
0	USEPA Region :	3 Ambient Air RBC	Residential	0.016	220	510	37	1000	0.072
Screening Levels	PADEP Indoor A	ir MSC _{IAQ} Nonresid	dential	48	580	510	100	6,100	9.5
	SV-3	4/7/2004	SV	13,000	<53	<54	<53	<73	<34
Anna O. Chauffor Mfo. Co.	TG-2	3/22/2005	SV	290	<0.72	< 0.74	< 0.72	<1.0	<0.47
Area 2: Stauffer Mfg. Co	SV-3B	2/28/2006	SV	4,200	<9.5	<9.7	<9.5	<13	<6.1
	IAQ-2	2/24/2006	IA	2.5	0.3	<0.14	<0.13	0.43	< 0.043
	SV-11	3/1/2006	SV	110,000	38,000	<300	<290	27,000	<190
Area 3: Gregory's	IAQ-7	2/24/2006	IA	0.43	<0.082	< 0.17	<0.16	<0.22	< 0.053
Woodworking	IAQ-7DUP	2/24/2006	IA	0.45	<0.082	<0.17	<0.16	<0.22	<0.053
VVOOdworking	SS-A-4	8/29/2006	SV	4.6	<0.56	< 0.57	<0.56	<0.77	<0.36
	IA-A-4	8/28/2006	IA	0.35	0.07	< 0.13	<0.12	0.3	< 0.040
Area 3: Great American Weaving Corporation	TG-4	3/22/2005	SV	2.0	<0.071	<0.14	<0.14	0.29	<0.046
	Upwind	2/24/2006	AA	<0.16	<0.06	<0.12	<0.12	<0.16	<0.039
Ambient Air Samples	Downwind	2/24/2006	AA	<0.17	< 0.064	< 0.13	<0.13	<0.18	< 0.041
Ampient Air Samples	AA-East	8/28/2006	AA	0.27	0.12	<0.13	<0.13	0.33	< 0.042
	AA-West	8/28/2006	AA	0.19	0.075	<0.13	<0.13	0.27	< 0.041

Notes

All results are presented in ug/m ³

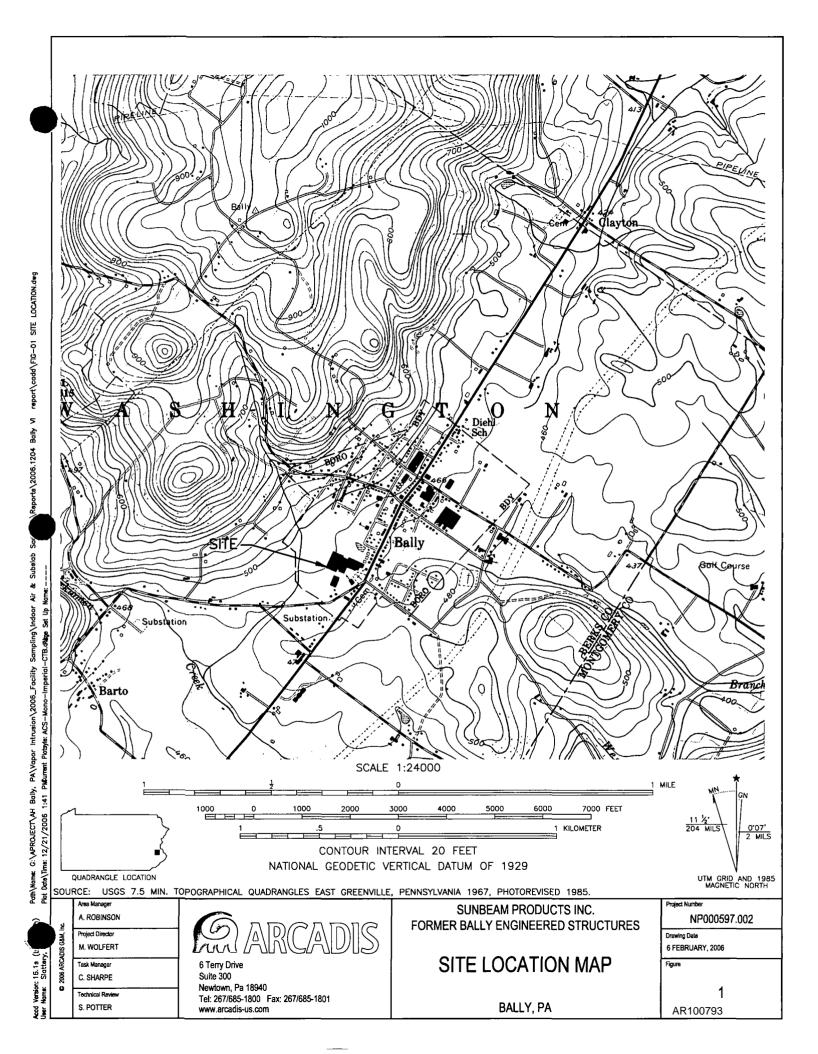
J - Results are estimated.

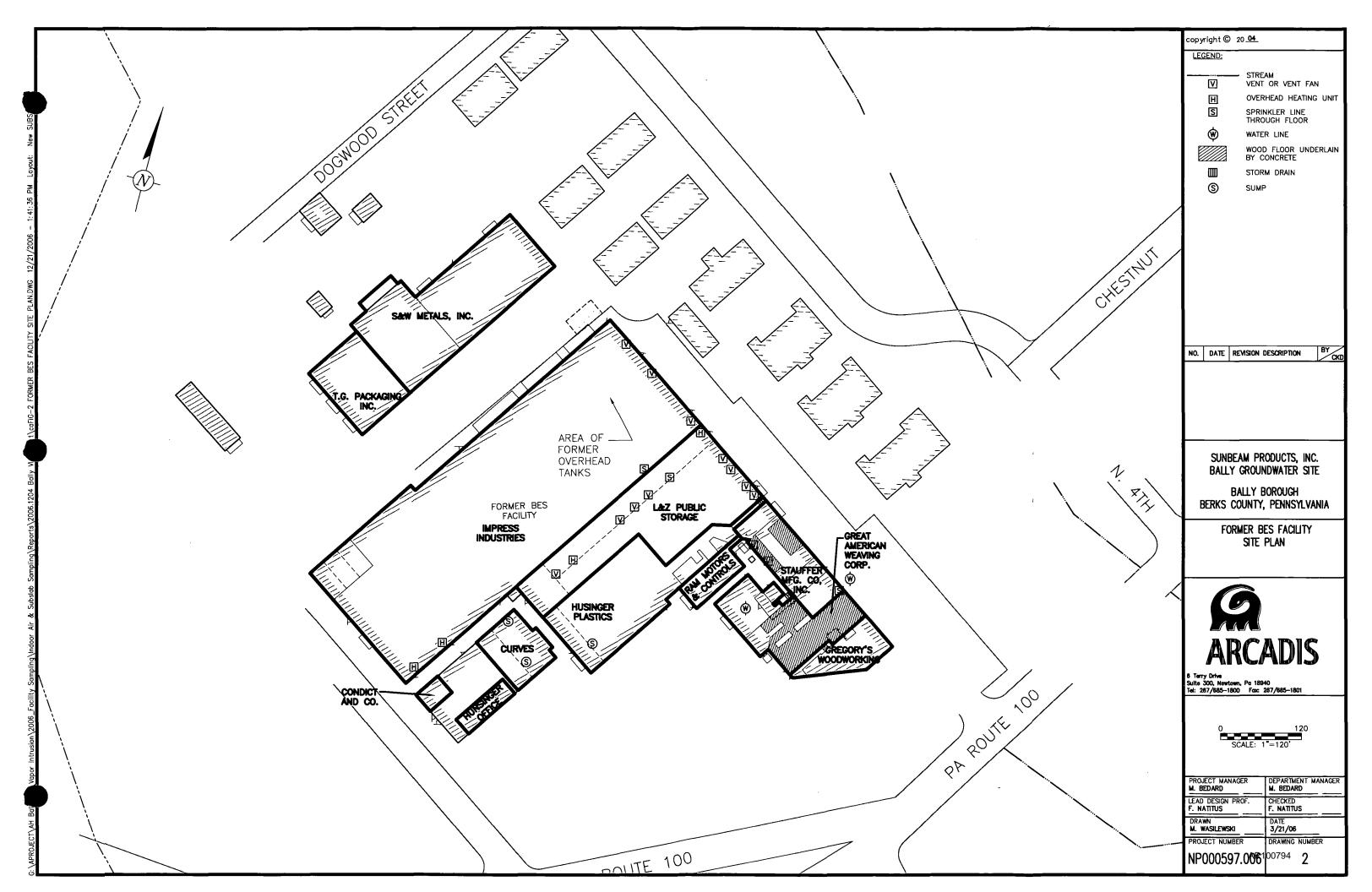
SV - Subslab soil vapor

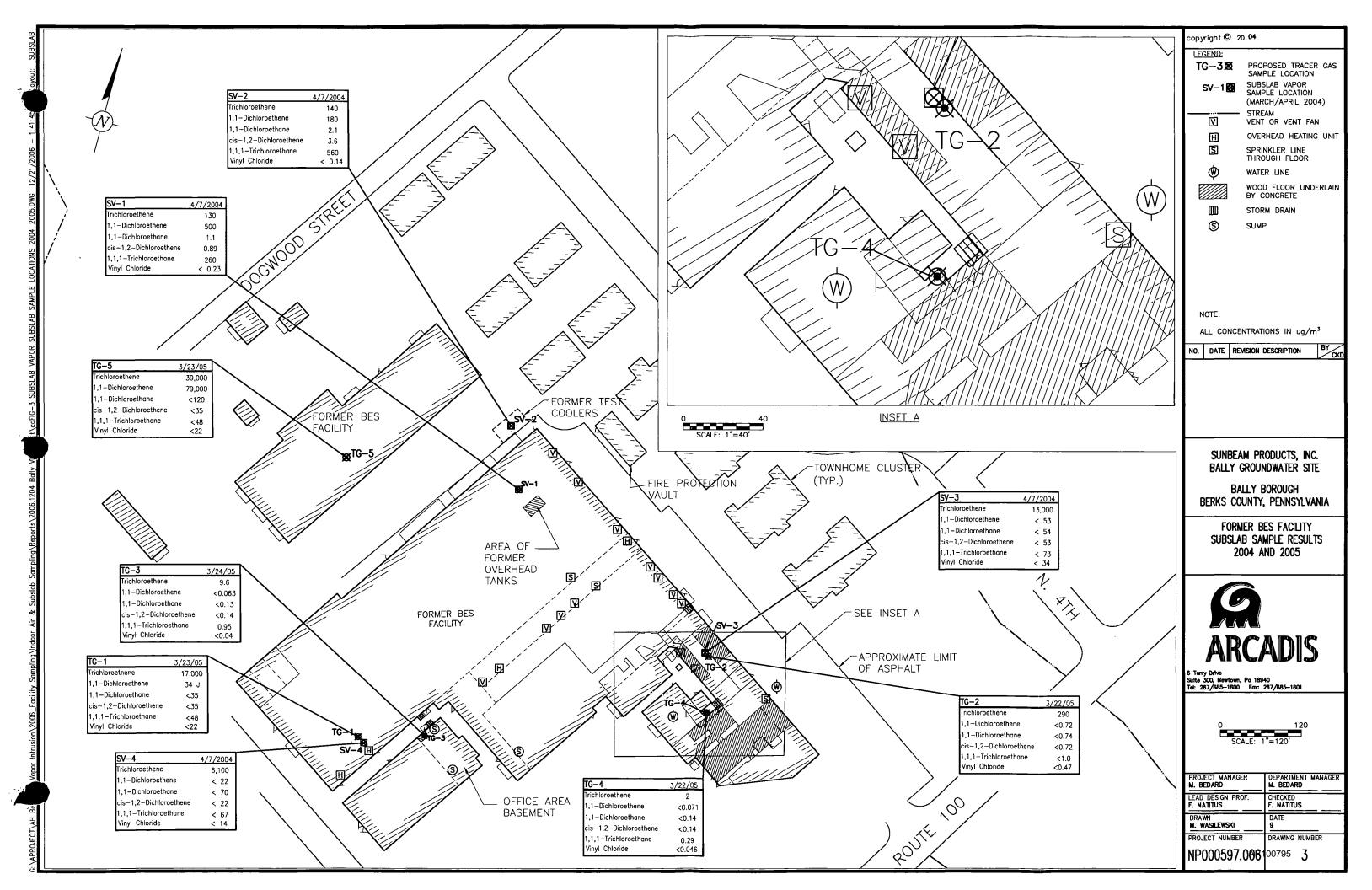
IA - Indoor air

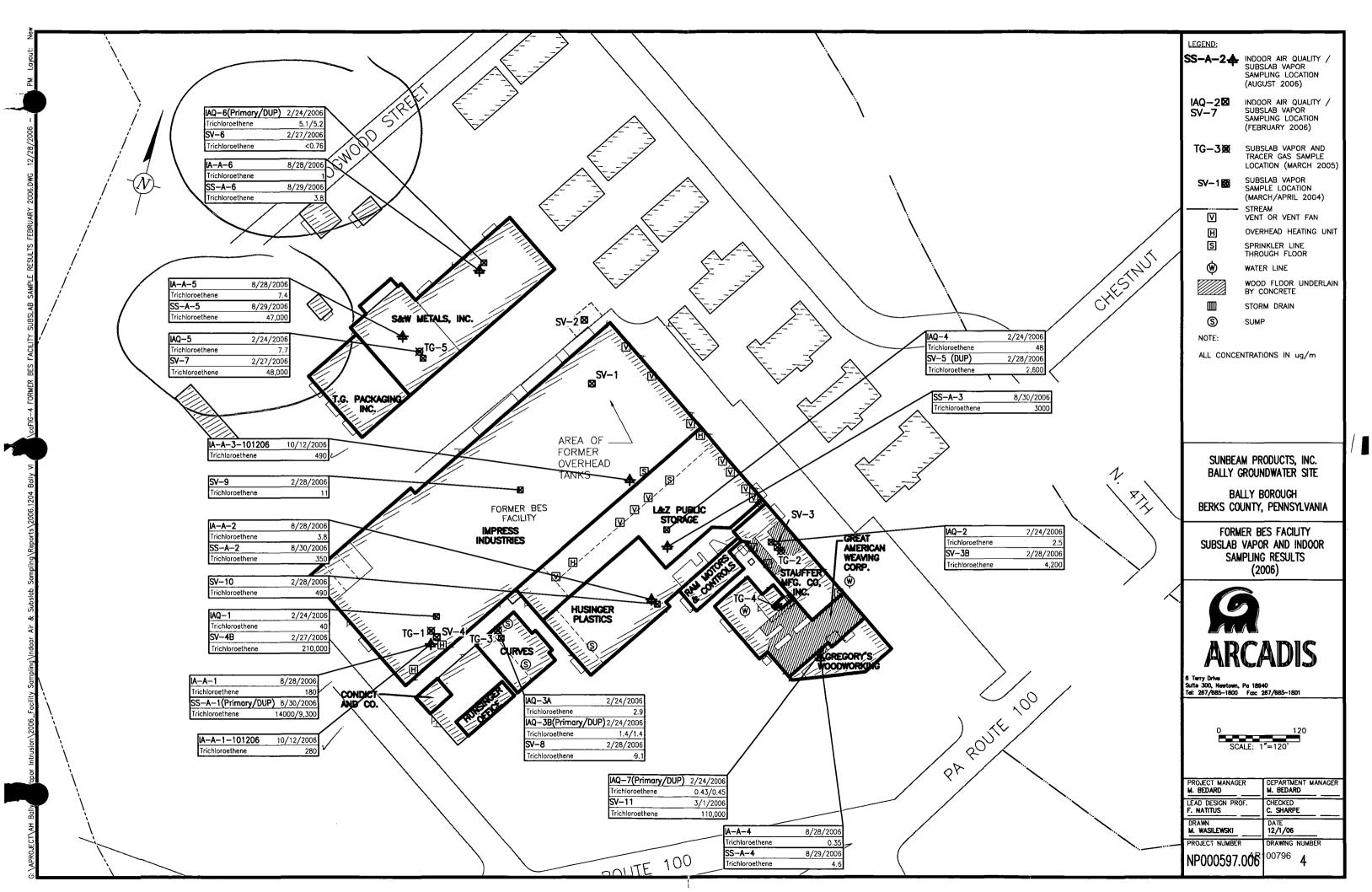
AA - Ambient air

NA - Not available









Appendix A

Standard Operating Procedures

Chain-of-Custody Procedures

Scope: This procedure describes the Chain-of-Custody used to establish the necessary

documentation to track sample possession from time of collection to analysis.

Purpose: The purpose of this procedure is to develop and maintain good quality control in field

operations and uniformity between field personnel involved in the documentation of

samples for shipment.

Equipment: Chain-of-Custody Record and Chain-of-Custody Seals

Procedure:

Prior to leaving the sampling site and/or prior to sealing sample cartons or coolers for shipment, the Chain-of-Custody Record must be completed.

Information to be provided on this form includes:

- 1. Project number and Location
- 2. Laboratory Identification
- 3. Sampling Party
- 4. Sample Identification (sample number)
- 5. Sample Bottle/Container Description
- 6. Date of Sampling
- 7. Signature of Persons including Chain-of-Custody and Dates and Times of Possession
- 8. Delivery Method (attach shipping bill)

Once the container is ready for shipment, Chain-of-Custody Seals shall be applied to the cooler in such a manner as to monitor tampering.

Upon change of possession, the record is to be signed and dated by both parties. The white (original) copy accompanies the shipment, the field sampler retains the yellow copy.

Air/Vapor Sample Packaging and Shipment

Scope:

This procedure describes acceptable methodology for packaging and shipping air/vapor samples to an analytical laboratory for chemical analyses.

Purpose:

The purpose of this procedure is to provide a uniform and documented means of securely transporting environmental samples to the laboratory so as to preserve the integrity and quality of the sample(s).

Equipment:

Packaging tape, mailing labels, chain-of-custody forms, chain-of-custody seals, and shipping forms.

Procedures:

- 1. Assemble all sample containers from the completed sampling event.
- 2. Locate, identify and record type of canister for each sample identification number on a chain-of-custody form.
- 3. Determine the total container count and cross check sample count.
- 4. Check to make sure canisters were labeled properly.
- 5. Place some shock absorbing material in the bottom of the package to prevent direct contact of the container with the bottom of the package.
- 6. Arrange canister to prevent movement.
- 7. Place the top copy of the chain-of-custody in package.
- 8. Close lid and place custody seals over the joint and cover with clear tape.
- 9. Properly complete and address a shipping form and affix to the lid of the package. Samples should be delivered to the laboratory by the next morning.
- 10. Deliver to an appropriate overnight courier or the laboratory.
- 11. File a copy of the chain-of-custody form and the shipping form in the project file.
- 12. Call laboratory the next morning to confirm arrival of samples.

Subslab Soil Vapor Sampling

Scope: This procedure describes the methodology to be used for the collection of subslab soil

vapor samples.

Purpose: The purpose of this procedure is to ensure good quality control in field operations,

uniformity between different field personnel and to allow traceability of possible cause

of errors in analytical results.

Equipment: Hammer Drill; 3/8 in. bit; tedlar bags; peristaltic pump; ¼ inch ID Masterflex tubing;

concrete sealant; 6-L Summa[™] canister; regulator; barometer

Procedure:

Probe Installation

1. Prior to subslab vapor probe installation, identify and mark utilities coming into the building from the outside (e.g., gas, water, sewer, refrigerant, and electrical lines) and utilities beneath (inside) the building.

- 2. Core hole through cement slab.
- 3. Drill an approximately 3/8 inch boring approximately 3 inches into subslab soil.
- 4. Remove the drill and cover the hole with inert material until the probe is ready to be inserted.
- 5. Install sampling apparatus (i.e., commercially available soil vapor point and tubing) so that it "floats" in the slab avoiding obstruction with subslab material.
- 6. Seal boring by creating an air-tight seal around sample tubing at ground surface using an inert material.
- 7. Check sampling apparatus connections. Note that barbed union fittings should be used for tubing connections. If there is a problem with obtaining fittings, the connections may be sealed using an inert material.

Soil Vapor Collection

8. Record location, date, time, weather, atmospheric pressure, approximate depth of subslab vapor samples, on Soil Vapor Sample Log.

- 9. Connect Tygon sample tubing to ¼ inch ID Masterflex tubing and a peristaltic pump and 1-L Tedlar bag. Use of a peristaltic pump will ensure that sampled air does not circulate through a pump causing potential cross contamination and leakage.
- 10. Purge vapor probe by filling two Tedlar bags or routing purge air to the exterior of the building with tubing. A purge volume of 2 L was chosen based on the assumption of a 2-inch sampling interval and an affected sample diameter of 0.61 m (2 ft). Purge rate should be approximately 200 cubic centimeters per minute (i.e., 5 minutes per Tedlar bag).
- 11. Record purge date and time on Soil Vapor Sample Log
- 12. Collect subslab vapor samples in evacuated 100 percent sim-certified 6-L SummaTM polished canisters equipped with regulators to control intake rate. Sampling rate should be approximately 200 cubic centimeters per minute. Check vacuum in canisters prior to sampling. At least 4-L of air will be collected in the canister for analysis (i.e. 20 minute collection time at 200 cubic centimeters per minute). Following sample collection, check and record final vacuum in canister. Submit canisters to a commercial laboratory for analysis. Record Sample ID, Date, Time and analysis requested on the Sample Label.
- 13. Record sample time on Soil Vapor Sample Log.
- 14. Remove sampling apparatus and seal the borehole annulus with an appropriate sealant to the original surface grade (*note duplicate sample collection method below*).

Duplicate Soil Vapor Sample Collection

- 1. Note duplicate sample location on Soil Vapor Sample Log.
- 2. Duplicate samples will be collected using duplicate tees and flow restrictors per laboratory guidance Check vacuum in canisters prior to sampling. At least 4-L of air will be collected in the canister for analysis (i.e. 20 minute collection time at 200 cubic centimeters per minute). Following sample collection, check and record final vacuum in canister. Record Duplicate Sample ID, Date, Time and analysis requested on the Sample Label.
- 3. Submit canisters to a commercial laboratory for analysis.

Indoor Air Quality Sampling

Scope: This procedure describes the methodology to be used for the collection of Indoor Air

Quality (IAQ) samples.

Purpose: The purpose of this procedure is to ensure good quality control in field operations,

uniformity between different field personnel and to allow traceability of possible cause

of errors in analytical results.

Equipment: ¼ inch ID Masterflex tubing; 6-L SummaTM canister; regulator/pressure gauge;

barometer, IAQ Sample Log, ARCADIS Form IAQ - 01

Procedure:

Indoor Air Quality Sample Collection

Before Sampling

1. Record location, date, time, weather, atmospheric pressure, canister number, flow controller number, on IAQ Sample Log.

- 2. Verify gauge operation. Gauge on flow controller should read "zero" before use.
- 3. Verify initial vacuum of canister per laboratory guidance.
 - a. Make sure canister valve is closed.
 - b. Remove brass cap from top of canister.
 - c. Attach gauge/flow controller to canister.
 - d. Attach brass cap to influent side of gauge/flow controller tee fitting.
 - e. Open and close valve quickly.
 - f. Read vacuum on gauge (Initial vacuum of the canister should be greater than 25 in. of Hg. If it is not call AirToxics client services at 1-800-985-5955 and arrange for replacement). Record gauge reading on "Initial Vacuum" section on chain of custody, IAQ Sample log, and on canister tag.

During Sampling

4. Install flow controller, supplied by AirToxics, to top of pressure gauge.

- 5. Install approximately 3-5 ft. tubing to end of flow controller to assure sample is collected at breathing level.
- 6. Open valve ½ turn.
- 7. Record time of sample collection start in IAQ Sample log.
- 8. Check and record gauge pressure in IAQ Sample log after 4 hours of sampling time have elapsed. The sample will be an integrated 8 hour sample. (Note that the flow controllers are set by the laboratory such that some vacuum will remain following the set collection period.)

After Sampling

- 9. Verify and record final vacuum on IAQ sampling log and on canister tag.
- 10. Close valve on canister by hand tightening knob.
- 11. Disassemble pressure gauge and flow controller. Replace brass cap on canister.
- 12. Complete canister sample tag.
- 13. Return canisters and sampling apparatus in boxes provided by laboratory.
- 14. Fill out chain of custody (COC) and place lab. copy of COC in box.
- 15. Seal box and affix custody seal.
- 16. Record canister to lab via appropriate shipping method, taking into account canister holding times (14 30 days).

Duplicate Indoor Air Quality Sample Collection

- 1. If a duplicate sample has been collected, note duplicate sample location on IAQ Sample Log.
- 2. Duplicate samples will be collected using duplicate tees and flow restrictors per laboratory guidance. Check vacuum in canisters prior to sampling. At least 4-L of air will be collected in the canister for analysis. Following sample collection, check and record final vacuum in canister. Record Duplicate Sample ID, Date, Time and analysis requested on the Sample Label.
- 3. Submit canisters to a commercial laboratory for analysis as described above.

Indoor Air Quality Sampling

Scope: This procedure describes the methodology to be used for the collection of Indoor Air

Quality (IAQ) samples.

Purpose: The purpose of this procedure is to ensure good quality control in field operations,

uniformity between different field personnel and to allow traceability of possible cause

of errors in analytical results.

Equipment: ¼ inch ID Masterflex tubing; 6-L SummaTM canister; regulator/pressure gauge;

barometer, IAQ Sample Log, ARCADIS Form IAQ - 01

Procedure:

Indoor Air Quality Sample Collection

Before Sampling

- 1. Record location, date, time, weather, atmospheric pressure, canister number, flow controller number, on IAQ Sample Log.
- 2. Verify gauge operation. Gauge on flow controller should read "zero" before use.
- 3. Verify initial vacuum of canister per laboratory guidance.
 - a. Make sure canister valve is closed.
 - b. Remove brass cap from top of canister.
 - c. Attach gauge/flow controller to canister.
 - d. Attach brass cap to influent side of gauge/flow controller tee fitting.
 - e. Open and close valve quickly.
 - f. Read vacuum on gauge (Initial vacuum of the canister should be greater than 25 in. of Hg. If it is not call AirToxics client services at 1-800-985-5955 and arrange for replacement). Record gauge reading on "Initial Vacuum" section on chain of custody, IAQ Sample log, and on canister tag.

During Sampling

4. Install flow controller, supplied by AirToxics, to top of pressure gauge.

- 5. Install approximately 3-5 ft. tubing to end of flow controller to assure sample is collected at breathing level.
- 6. Open valve ½ turn.
- 7. Record time of sample collection start in IAQ Sample log.
- 8. Return to collect the sample 8 hours after deploying canister. The sample will be an integrated 8 hour sample. (Note that the flow controllers are set by the laboratory such that some vacuum will remain following the set collection period.)

After Sampling

- 9. Verify and record final vacuum on IAQ sampling log and on canister tag.
- 10. Close valve on canister by hand tightening knob.
- 11. Disassemble pressure gauge and flow controller. Replace brass cap on canister.
- 12. Complete canister sample tag.
- 13. Return canisters and sampling apparatus in boxes provided by laboratory.
- 14. Fill out chain of custody (COC) and place lab. copy of COC in box.
- 15. Seal box and affix custody seal.
- 16. Record canister to lab via appropriate shipping method, taking into account canister holding times (14 30 days).

Duplicate Indoor Air Quality Sample Collection

- If a duplicate sample has been collected, note duplicate sample location on IAQ Sample Log.
- 2. Duplicate samples will be collected using duplicate tees and flow restrictors per laboratory guidance. Check vacuum in canisters prior to sampling. At least 4-L of air will be collected in the canister for analysis. Following sample collection, check and record final vacuum in canister. Record Duplicate Sample ID, Date, Time and analysis requested on the Sample Label.
- 3. Submit canisters to a commercial laboratory for analysis as described above.

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Appendix B

Sample Logs

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INDOOR AIR QUALITY SAMPLE LOG

Sample 18 ALTAQ-01-022406	Project/No.	NP000597.0006.00007	
Date 3) 24 00	Sampling Personnel	DBK	
Time 1030	Duplicate ID		
Weather Parth Moude, wind gusts	Barometric Pressure	29.56 in Ha	
up to 40 mph. 9.5°C	Corresponding Subslab ID		
DESCRIPTION OF SAMPLE LOCATION:			.**
AU OUR Filt		S	
Location All Bally Facility	Cannister Type	SIMMA	
Facility Former BES	Cannister No.	11882	
Floor Type Concrete	Flow Regulator No.	11889	
Cracks?	Pre Sample Vacuum	-31 in Hg	
Room Dimensions	Begin Sample Time	<u>1030</u>	
Tie Meas 1	Mid Sample Time	1310	
Tie Meas. 2	Mid Sample Vacuum	-19.5	
Tie Meas. 3	End Sample Time	7:28	٠
Intake Height	End Sample Vacuum	-6.0 "H3	
FIELD PARAMETERS:			- '
Sample Method Ambient air	- low Summa can	niste	
Sample Description			
PID I			
PID			
FID			
	Location Diagra		
CONTAINER DESCRIPTION:	1	Outside wall	
Container Analysis	55.0	25' neat heart blower	
6L Summa TO-15	- J	neat blower	
	- · · · · /		
	/		,
	J FAQ-	01 8/-ca	trance
]		
Total		\	
	Influent port /r	no tubing) at 5.51	. ,
	above grovno		l .
			A+1

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See backside for resampling

INDOOR AIR QUALITY SAMPLE LOG

Sample ID	L- TAQ-Q-022	406	Project/No.	NP000597.0006.00007
Date	2/24/2006		Sampling Personnel	D. K.
Time	850		Duplicate ID	
Weather	Sunny, Windy - gusts	& 40 mph	Barometric Pressure Corresponding Subslab I	>9.47 in. Hg
DESCRIPTIO	N OF SAMPLE LOCATION:			
Location	Shoulter Blow 1	<u>. </u>	Cannister Type	<u>SUM MA</u>
Facility	Former BES		Cannister No.	35.242
Floor Type			Flow Regulator No.	35242
Cracks?	Concrete		Pre Sample Vacuum,	-30
Room Dimens	sions		Begin Sample Time	8:50 AM
Tie Meas.1			Mid Sample Time	
Tie Meas. 2			Mid Sample Vacuum	<u> </u>
Tie Meas. 3			End Sample Time	705 PM
Intake Height		 .	End Sample Vacuum	<u>-12:0 "Hg</u>
FIELD PARA	METERS:			
PID FID				
,		·	Location Diag	ram (Show Ties)
CONTAINER	DESCRIPTION:		•	oxtside wall
	Container 6L Summa TO-	Analysis -15	77.77	27' 000-21 Wall
· :			China	14.5
		•	Steel Reil	Steel I beam in floor
Total			Influent part (No tubing)	15 6.0' high.

Note: The pressure trading bound book - 25 guicky. Then the it was tighted up to socure the Sooling The reading moved to -15 dury G: VAPROJECTVAH Bally, PA\Vapor Intrusion\2006_Facility Sempling\Indoor Air & Subslab Sampling\workplan 1005\2006_revision\Attachment 2 - indoor air survey and log\Indoor Air Quality SampleForm.xls

Starting 8: 30 AM. Q. 9: 10 AM. The rading is -4: n. 14. @ 9 7500 808

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		JALITY SAMPLE LOG	
Sample IDAL-	TAQ-BA-022406	Project/No.	NP000597.0006.0 0007
Date	2/24/06	Sampling Personnel	DBK
Time	921	Duplicate ID	
Weather	Surry, gusts & 40 mph	Barometric Pressure	≥9.47 in Ha
	2-11-1-1-1	Corresponding Subslab ID	
DESCRIPTION	OF SAMPLE LOCATION:		
		.	COALL A
Location		Cannister Type	SUNMA
Facility	Former BES	Cannister No.	2(00)
Floor Type	Linoleum	Flow Regulator No.	34007
Cracks?		Pre Sample Vacuum	9:21
Room Dimension		Begin Sample Time	1240
Tie Meas.1	<u>See diagram</u>	Mid Sample Time	-19.5 in Hg
Tie Meas. 2		Mid Sample Vacuum	620
Tie Meas. 3		End Sample Time End Sample Vacuum	-6.0"Ftg
Intake Height	ETEDO:	End Sample Vacuum	
FIELD PARAM	EIEKS:		
Sample Metho	Indor air	r per W.P.	
Sample Descri			
Campie Dessi.			
PID			
FID			
, פו		— Location Diagra	am (Show Ties)
CONTAINED	DESCRIPTION:	0.00	in (enew rice)
CONTAINENT	COUNTY TON.	0015100 VM	11 1
	O (s) as Analysis	2.5	4.41
	Container Analysis 6L Summa TO-15	13.51 2.51	3.0
	or or in	-	2.51 TAQ-3A
		3.01	-
		7	I FL
		-1 \	13
		7	
T-4-1		1_,	stairs
	·		
Total		Influent tubing	9 9F 470 Up
iotai		Influent tubing	3 at 470 Up

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INDOOR	AIR	QUAL	ITY S	AMPL	E LOG
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	م مست	- 80D	_022406 Project/No			
Sample ID	TAQ	3B~ DUP 2	Project/No.	NP000597.0006.0	00007	
Date	212	4106	Sampling Personnel	DBK		
Time	923		Duplicate ID			
Weather	Sunny, windy	- gusts = 40 mph	Barometric Pressure Corresponding Subslab ID	29.65 in 1	19	
DESCRIPTIO	N OF SAMPLE LO	CATION:				
Location		· .	Cannister Type	SUMM A		
Facility	Former BES		Cannister No.	11006		• •
Floor Type	Con	crete	Flow Regulator No.	11006		
Cracks?			Pre Sample Vacuum		1 Hg	•
Room Dimen		·—————	Begin Sample Time	923		-
Tie Meas.1	See diagra	7 hv	Mid Sample Time	1251		
Tie Meas. 2			Mid Sample Vacuum	-20.0 ii	1 Hg	
Tie Meas. 3	<u> </u>		End Sample Time	<u> </u>	010	
Intake Height			End Sample Vacuum	630	PI	
Sample Desc PID FID						
			Location Diagran	n (Show Ties)		
CONTAINER	R DESCRIPTION:		exit outside	: Wall		
	Container	Analysis	7	01	_7"	
	6L Summa	TO-15	h		TAR	
			7 1		()	-33-0
•					Toubr	
•					Shop	
Total		-,			-a-	•
		•	outside wall		Entran-H	Porves
			Inflient and re	Ul aboute a	/ca.m.	<i></i>
		•	Influent part ~	<u> </u>	VV)	
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INDOOR AIR QUALITY SAMPLE LOG

	ショール(こうしつ) ハベドー (1)11111111111111111111111111111111111	D14/M-	ND000507 0000 00007
• .	IAQ -03B-1		Project/No.	NP000597.0006.00007
Date	2/24/2000	<u></u>	Sampling Personnel	DBK 038-010
Time	755		Duplicate ID	BAL-PAQ-038-DUP-
Weather	Sunny, Windy -	gu sts = gomp	Barometric Pressure	29.65 in Hg
DESCRIPTION	N OF SAMPLE LOCATI	ON:	Corresponding Subslab ID	'
Location			Cannister Type	Summa
Facility	Former BES		Cannister No.	34423
Floor Type	- Indigues	Concrete	Flow Regulator No.	140 086 34423
Cracks?			Pre Sample Vacuum	-27.5 intto
Room Dimens	ions		Begin Sample Time	9:53
Tie Meas.1	See diggram		Mid Sample Time	1251
Tie Meas. 2			Mid Sample Vacuum	-17.0
Tie Meas. 3			End Sample Time	630 PM
Intake Height	· · · · · · · · · · · · · · · · · · ·	•	End Sample Vacuum	<u>-4.3</u>
FIELD PARAM	WETERS:	•		
Odinpio mionic	احتم الأ	. 1 1	. ,	
Sample Methor Sample Descr	the state of the s	ndoor al	r per W.P.	
Sample Descr PID	the state of the s		- po	
Sample Descr PID FID	the state of the s		Location Diagra	am (Show Ties)
Sample Descr PID FID	iption	Analysis TO-15	 	
Sample Descr PID FID	DESCRIPTION:	Analysis	Location Diagra	
Sample Descr PID FID	DESCRIPTION:	Analysis	Location Diagra	
Sample Descr PID FID	DESCRIPTION:	Analysis	Location Diagra	

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INDOOR AIR QUALITY SAMPLE LOG

Sample 108A1 - IAQ -01 - 022406	Project/No. <u>NP000597.0006.00007</u>
Date $\frac{2}{34}$ $\frac{306}{100}$	Sampling Personnel K.M.
Time 910	Duplicate ID
Weather Sunny, windy of to 40 mph	Barometric Pressure 39.47 in. Hg
	Corresponding Subslab IDU
DESCRIPTION OF SAMPLE LOCATION:	
Location AH Bally, Bally PA	Cannister Type Summa
Facility Former BES	Cannister No.
	Flow Regulator No. 11885
Cracks?	Pre Sample Vacuum 30
Room Dimensions	Begin Sample Time 9/0
Tie Meas. 2 See diagram Tie Meas. 2	Mid Sample Time 1210 Mid Sample Vacuum -17.0
Tie Meas. 3	End Sample Time 521
Intake Height	End Sample Vacuum -6.0
FIELD PARAMETERS:	
Sample Method Yer WP	
Sample Description Padoor Air	
'PID	
FID	_
	Location Diagram (Show Ties)
CONTAINER DESCRIPTION:	Sheet 100 k will
	16.5/1-17 bear
Container Analysis	15.51
6L Summa TO-15	1 7 10
·	1 2 9
	28.0'
	4` 1
	-
Total	
	Tallied tubing ~ 501 du
	Influent tubing ~ 5.0' above around.

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INDOOR AIR QUALITY SAMPLE LO	
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Date Time Weather	IAQ 705 - 02 24-0 6 2/24/06 935 Sunny, Windy - gusts = 40 pp	Project/No. Sampling Personnel Duplicate ID Barometric Pressure Corresponding Subslab ID	NP000597.0006.00007 ≥947 in. Hg
Location		Cannister Type	SUMM A
Facility Floor Type Cracks?	Former BES KMSI Concrete	©Cannister No. Flow Regulator No. Pre Sample Vacuum	13846
Room Dimension Tie Meas.1	ns	Begin Sample Time Mid Sample Time	1330 1330
Tie Meas. 2 Tie Meas. 3 Intake Height		Mid Sample Vacuum End Sample Time End Sample Vacuum	-23.5 -73.9 -13.5
FIELD PARAME Sample Method	iters: <u>Indoor A</u>	r per WP.	
Sample Descript	ion		
PID FID		-	
			(0)
CONTAINER DE	ESCRIPTION:	Location Diagram	Theams
	ESCRIPTION: Container Analysis 6L Summa TO-15		251 B T beams
	Container Analysis	Sliding of 251 Sp. door o	251 B T beams
	Container Analysis	Sliding of 251 p	251 F beams OF I beams

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INDOOR AIR QUALITY SAMPLE LOG

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Sample BAL	IAQ-60-02240h	Project/No.	NP000597.0006.00007
Date	2/24/01	Sampling Personnel	DBK
Time	925	Duplicate ID	
Weather	SUARY, WINDY - gusts = 40 mpl		29.47 in 49
	- All Jessey	Corresponding Subslab ID	
DESCRIPTION	OF SAMPLE LOCATION:		
	20 VIII	L	0
Location	SXIW Moral Droduct 10/1	Cannister Type	AMMA
Facility	Former BES 14/14	Cannister No.	HOTEL 242/4
Floor Type	<u>Concrete</u>	Flow Regulator No.	### 343W
Cracks?		Pre Sample Vacuum	2,0
Room Dimensi	ons	Begin Sample Time	9:25AU
Tie Meas.1	See diagram	Mid Sample Time	1325
Tie Meas. 2		Mid Sample Vacuum	-18.5
Tie Meas. 3		End Sample Time	1801
Intake Height		End Sample Vacuum	-8.5
FIELD PARAM	ETERS:		
	The Air A	.	
Sample Metho	7	er W/	
Sample Descri	otion		
			
PID		-	
FID		- -	
		Location Diagram	(Show Ties)
CONTAINER	DESCRIPTION:	i e	•
		1	
•			
	Container Analysis	,	1
	Container Analysis 6L Summa TO-15		RI I
			A HAT
je,			M M
			M
		40.0	
		<u> </u>	
Total		outside & o	X .
Total		outside & o	M N
Total		outside & o	M A
Total		Outside \$ 0	
Total		Outside \$ 0	1.0' above ground.

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_	UNDOOR AIR QU	ALITY SAMPLE LOG	
BAL — Sample ID	IAQ-8-022406	Project/No.	NP000597.0006.00007
Date	2/24/200 b	Sampling Personnel	K.M
Time	1610	Duplicate ID	
Weather	Sunny, Windy, gusts = 40mph	Barometric Pressure	29.47 in. Hq
•	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Corresponding Subslab ID	J
DESCRIPTION	OF SAMPLE LOCATION:		
Location Facility Floor Type	Gregory wood working Former BES Linole um	Cannister Type Cannister No. Flow Regulator No.	SUMMA 14866 14866
Cracks?	2,10100	Pre Sample Vacuum	-20
Room Dimensi	ons	Begin Sample Time	1010
Tie Meas.1	See diagram	Mid Sample Time	1220
Tie Meas. 2		Mid Sample Vacuum	-25.0
Tie Meas. 3		End Sample Time	<u> </u>
Intake Height		End Sample Vacuum	11.5
FIELD PARAM	METERS:	•	
Sample Metho Sample Descri PID FID		per W.P.	
PID .		- Location Diagra	m (Show Tips)
CONTAINER	DESCRIPTION:	03-10-14	
	Container Analysis 6L Summa TO-15	Jall Jall Jall Jall Jall Jall	AG-01 Heror wall
Total		Influent port ~	19.0' above ground.



INDOOR AIR QUALITY SAMPLE LOG

Sample ID	BAL - IAQ - UW-022406	Project/No.	NP000597.0006.00007
Date	2/24/06	Sampling Personnel	DBK
Tìme	955	Duplicate ID	
Weather	Mostly Sumy, 35°F,	Barometric Pressure	29:62 in Hg
	quety winds up to 45 mph	Corresponding Subslab ID	
DESCRIPTION	OF SAMPLE LOCATION:	,	
Location	outside facility - upwind	Cannister Type	SUMMA
Facility	Former BES	Cannister No.	94304
Floor Type	- Connect DEG	Flow Regulator No.	94304
Cracks?		Pre Sample Vacuum	-30mm
Room Dimensi	ons	Begin Sample Time	09:55
Tie Meas.1	Corner of Facility	Mid Sample Time	1352
Tie Meas. 2		Mid Sample Vacuum	-17.5
Tie Meas. 3		End Sample Time	7:00 PM
Intake Height		End Sample Vacuum	-7-0
FIELD PARAM	METERS:		
v			
Sample Metho	d <u>fer WP</u>		
Sample Descr	iption <u>Upwind</u>		
		·-	
PID		_	
FID		_	
		Location Diagram	n (Show Ties)
CONTAINER	DESCRIPTION:	Route 100	
	Container Analysis	75'	
	6L Summa TO-15	Grass 7	
· _		Paved 130	regory nativority
		Touch 100	as wor lang
•		1	
•			
Total		1	
			·
	· · · · · · · · · · · · · · · · · · ·	No fubing. Influe	nt port ~ 2.0' above
•		ground.	nt port ~ 2.0' above



INDOOR AIR QUALITY SAMPLE LOG

RNI			
Sample ID	IAQ-DW-022406	Project/No.	NP000597.0006.00007
Date	2/24/06	Sampling Personnel	DBK
Time	10:05	Duplicate ID	
Weather	Sunny, 350F, quisty	Barometric Pressure	29.65 " H9
	winds	Corresponding Subslab ID	
DESCRIPTION	OF SAMPLE LOCATION:		
Location		Cannister Type	SUMMA
Facility	Former BES	Cannister No.	39749
Floor Type	Grass	Flow Regulator No.	34749
Cracks?		Pre Sample Vacuum	-30 in Ha
Room Dimensi	ions	Begin Sample Time	10:05
Tie Meas.1	See diagram	Mid Sample Time	1343
Tie Meas. 2		Mid Sample Vacuum	-18:0
Tie Meas. 3		End Sample Time	644 PM
Intake Height		End Sample Vacuum	- 7.9
FIELD PARAM	METERS:		
, v			
Sample Metho	d		
Sample Descri	iption		
		· · · · · · · · · · · · · · · · · · ·	
PID		warmann	
FID			
	:	Location Diagra	m (Show Ties)
CONTAINER	DESCRIPTION:		
•	•		•
	Container Analysis		
•	6L Summa TO-15		
			(wood worlder
		J. X///	(MOOD MONITOR
•		2018	
Total		Grass 30/ R	ad .
		8	
•			cemotery
	^	Ala dulaina of 11	
	\sim	ground.	ent port n 2.0' above
•		9.00.0	



SOIL VAPOR SAMPLE LOG

Sample ID BAL-SV-009-030106 Date 3.1.06 Time 0931 Weather Clay, low 303 DESCRIPTION OF SAMPLE LOCATION:	•	NP000597.0006. 20M+DBK 1/4 29.29"49
Location Facility Former BES Floor Type Cracks? Room Dimensions Tie Meas. 1 42 to Thean w/ Off tank Tie Meas. 2 15/15 E wall Tie Meas. 3 252' to N wall FIELD PARAMETERS:	Cannister No. Flow Regulator No. Pre Sample Vacuum Sample Depth (ft) Purge Time Purge Rate Purge Volume Begin Sample Time End Sample Time	GL Simmy 13882 13882 -28.6" Hg 7" 0911-0929 200m/min 2.5 C 0931 1011
	End Sample Vacuum Schfillahin cell then a Slay ~ 15" thick	Hach Summer

	Container 6L Summa	Analysis TO-15	
. ,	0,13L Sein. cell	Radin	_
			_
			_
TOTAL:	2		

Location Diagram (Show Ties)

1. beam significant for off tink

print off tink

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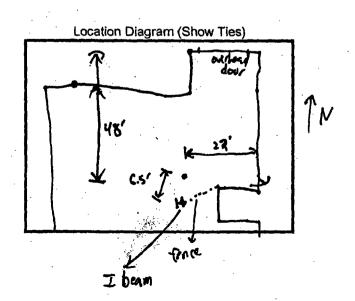


SOIL VAPOR SAMPLE LOG

S	ample ID	BAL-5V-010-022806	Project/No.	NP000597.0006.	
۵, : '	ate	2.28.06	Sampling Personnel	POM+DBK	
Ti	ime	1326	Duplicate ID	n/a	
W	Veather	mostly clev, low 30s	Barometric Pressure	29, 35" Hg	
D	ESCRIPTIO	N OF SAMPLE LOCATION:			
i Lo	ocation	Hunsinger Plastics (HPE)	Cannister Type	GL Summa	
•		Former BES	Cannister No.	9544	
t	loor Type	Concrete	Flow Regulator No.	वें इंपेप	•
100	Cracks?		Pre Sample Vacuum	-30.0 11 Ha	
R	Room Dimens		Sample Depth (ft)	Drilled ~ 8", hanging prob	وسمح
Τ.	ie Meas.1	22' to door wall	Purge Time	1341-1353 'above be	s ttom
		6.5' to I-beam	Purge Rate	200 mL/min	
Τ	ie Meas. 3	48 to N wall have overlead door	Purge Volume	2.5L	
· .			Begin Sample Time	1355	
F	IELD PARA	METERS:	End Sample Time	143/	
			End Sample Vacuum	-4.5" Hy	
S	Sample Meth	od <u>GL Summa,</u>	sub slab, 70-19	analysis	
∖ S	Sample Desc	ription Sub Slab Vapor		<u></u>	
			·		
P	סוי	5.2 pm; backgroud: 0.5	<u> 20m</u>		
F,	ID.	n/a	_		
,					

CONTAINER DESCRIPTION:

O.13 L Scin. cell	Analysis TO-15 Radon		
TOTAL: 2			



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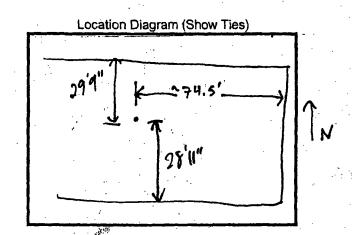


SOIL VAPOR SAMPLE LOG

Sample ID BAL-5V-03B-022806	Project/No.	NP000597.0006.
Date 2.28.06	Sampling Personnel	ROM + DBK
Time 0929	Duplicate ID	nla
Weather mostly clear, mid 203	Barometric Pressure	29.35" Hg
DESCRIPTION OF SAMPLE LOCATION:	•	
Location Studies Mand. Sonce	Cannister Type	6L Summa
Facility Former BES	Cannister No.	403
Floor Type (uncrete w/ areas of hundwood	Flow Regulator No.	403
Cracks? widely segmented	Pre Sample Vacuum	-29.6" Ha
Room Dimensions $^{59} \times ^{79}$	Sample Depth (ft)	8" below surface
Tie Meas.1 29.9"	Purge Time	0917 - 0929
Tie Meas 2 -74.5'	Purge Rate	200 ml/min
Tie Meas 3 28/11"	Purge Volume	2.5 4
	Begin Sample Time	(0917) pom 6929
FIELD PARAMETERS:	End Sample Time	1005
	End Sample Vacuum	- 3.0"Ha
Sample Method Rune 2.5 C Hranh S	cintillation cell, then	
Sample Description Sub Slab Vapor	· Slab ~ 11" thick	·· J
Indoor Air Quality	(IAO-4)	
PID 3.7 Ppm		
FID %/a	- Parkey	
	-	
·	,	

CONTAINER DESCRIPTION:

С	ontainer	Analysis
	Summa	TO-15
.13	L cell	Radon
		
ıL:	2	



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SOIL VAPOR SAMPLE LOG

Sample ID BAL - SV - 048 - 022700 Date 2 27 06 Time 15 41 Weather Party cloudy, 25°F	Project/No. Sampling Personnel Duplicate ID Barometric Pressure	NP000597.0006. DBK, FS. 29.56" Hz
DESCRIPTION OF SAMPLE LOCATION:		
Location mpfess ndvs-ne's Facility Former BES Floor Type Contete Cracks? No Room Dimensions Tie Meas.1 13 3 Tie Meas.2 19 'to" Tie Meas.3 ~50' FIELD PARAMETERS; Sample Method Colored Sample Description Sub Slab Vapor	Cannister Type Cannister No. Flow Regulator No. Pre Sample Vacuum Sample Depth (ft) Purge Time Purge Rate Purge Volume Begin Sample Time End Sample Time End Sample Vacuum	56 Summa 33980 33980 -28 hole ~14", harging probe at 6 12.5 min 200 ml/min ~2.50 1617 1657 -3 306-5lab
PID 97.1 ppm 0.8 ppm	omprent.	
CONTAINER DESCRIPTION: Container Analysis 6L Summa TO-15 TOTAL:	Supress (or of a)	on Diagram (Show ties)

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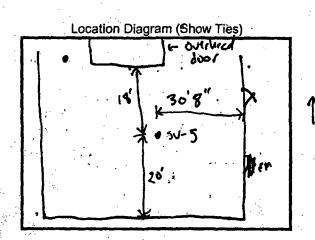


SOIL VAPOR SAMPLE LOG

Sample ID	BAL-5V-605-1022806	Project/No.	NP000597.0006.
Date	2.28.06	Sampling Personnel	eom+d8K
Time	1123	Duplicate ID	3AL-SV-050-012806
Weather	mostly der. upper 20s	Barometric Pressure	29.35" Hg
DESCRIPTI	ON OF SAMPLE LOCATION:		
Location	Liz Public Storage	Cannister Type	GL Summa
Facility	Former BES	Cannister No.	94949 (D-1-91883) 4084)
Floor Type:	Concrete	Flow Regulator No.	94949 (+0-)
Cracks?	Holds from that feet	Pre Sample Vacuum	-28.4" Ha Romy nun - 285"Ha)
Room Dime	ensions ~[15×	Sample Depth (ft)	ĬŸ [*]
Tie Meas.1	20 to 5 wall	Purge Time	1110 - 1122
Tie Meas. 2	368" to Ewall il door	Purge Rate	200 int/amh
Tie Meas. 3	18' to stand alone room	Purge Volume	2.5 L
	: <u>; </u>	Begin Sample Time	1/23
FIELD PAR	AMETERS:	End Sample Time	1200
47.50		End Sample Vacuum	-3.5 "/m Dp=-49"/49
⊁ Sample Me		scintillation cell, att	
Sample De	Carl Western 17	45=17" tusck	duplicate Summe
	Indoor Air Qualit	(IAQ-4)	
PID	1.6 ppm background: 0.3	مم <u>ل کی</u>	
FID	n/9		
1.14 PM			

CONTAINER DESCRIPTION:

Container	Analysis
6Ľ Summa	TO-15
.BL son cell	Radon
TOTAL: 2 +20 plicule	
TOTAL: 2 +20 plicale	



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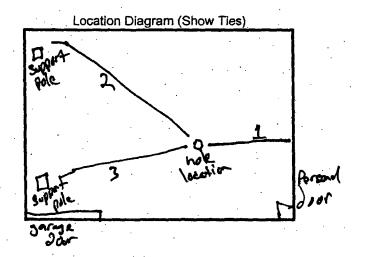


SOIL VAPOR SAMPLE LOG

Sample ID 114C-211-06-077106	Project/No.	NP000597.0006.	
Date 2.27.06	Sampling Personnel	DBK, FS	
Time 1220	Duplicate ID		
Weather Partly Cloudy	Barometric Pressure	29.65" Hg	,
DESCRIPTION OF SAMPLE LOCATION:			
Location 546	Cannister Type	SUMMA	
Facility Former BES	Cannister No.	937	
Floor Type Concrete N1211 thuk	Flow Regulator No.	937	÷.
Cracks? None	Pre Sample Vacuum	- 29	
Room Dimensions 300'x 500'	Sample Depth Min	& Joilled 12" Floored	probe
Tie Meas.1	Purge Time	12.5min	
Tie Meas. 2 8"7"	Purge Rate	200ml/min	:
Tie Meas. 3	Purge Volume	~2.5 L	
A Company of the Comp	Begin Sample Time	1220	
FIELD PARAMETERS:	End Sample Time	13:12	•
	End Sample Vacuum		
Sample Method			
Sample Description Sub Slab Vapor		·	
			•
PID <u>6.3 PPM</u>	· · · · · · · · · · · · · · · · · · ·		
FID		, 1 , -	
		. •	
CONTAINED DECORIDATION.			•

CONTAINER DESCRIPTION

	Container 6L Summa	Analysis TO-15
TOTAL:		





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SOIL VAPOR SAMPLE LOG

	•	
Sample ID BAL-SV-17-022706	Project/No.	NP000597.0006.
Date 2/17/36	Sampling Personnel	DBK
Time (400)	Duplicate ID	
Weather Partly Cloudy, light snow	Barometric Pressure	26 29.56" Hg
25012		a role of
DESCRIPTION OF SAMPLE LOCATION:		
Location St G	Cannister Type	SUMMA
Facility Former BES	Cannister No.	421
Floor Type Asphalt	Flow Regulator No.	421
Cracks?	Pre Sample Vacuum	-30
Room Dimensions 150 x 150 t	Sample Depth (ft)	Floorting 6" below around surface 12"
Tie Meas.1	Purge Time	
Tie Meas. 2	Purge Rate	~206 mU/min
Tie Meas. 3	Purge Volume	2.5 L
	Begin Sample Time	1413
FIELD PARAMETERS:	End Sample Time	<u> </u>
Sample Method (o L Summa	End Sample Vacuum	5.\\
	<u>Sub Slab- 30</u>	O min. sample
Sample Description Sub Slab Vapor	· _ · _ · _ · _ · _ · _ · _ · _ · _ · · _ · · _ ·	
PID 491 pam ambient = 1.7	DDM	THI SA NO 1 142 (1
	Pri	Mid Sample time 1430
FID Y	• · · · · · · · · · · · · · · · · · · ·	Med Sample Vac -14" Sample time = 1443
		Sample Vac = -6.0"
CONTAINER DESCRIPTION:		comple vio 2 vio
Clerk (A)		
Container Analysis 6L Summa TO-15		on Diagram (Show Ties)
or Summa 10-13		itside wall
	- 31	•
	- 241	
	- ao'\ 6'.	
	- 19 mto	(2)
TOTAL:	- 181	
TOTAL	8 Contract	
	Ø 1 0	_ \ \
	- C	
		4
	•	8
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and the state of t	$\label{eq:control_state} S(S, \mathbf{x}, \mathbf{y}) = S(S, \mathbf{y}, \mathbf{y}) + S(S, $	AR100824

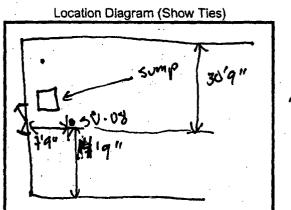
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SOIL VAPOR SAMPLE LOG

Sample ID	BAL-5V-008-022806	Project/No.	NP000597.0006.
Date	2.28.06	Sampling Personnel	120M + OBK
Time		Duplicate ID	n/4
Weather	clear, mid-upper30s	Barometric Pressure	
DESCRIPTION	ON OF SAMPLE LOCATION:	·	
Location	Basement below Curves	Cannister Type	66 Summs
Facility	Former BES	Cannister No.	02242
Floor Type	<u>Concrete</u>	Flow Regulator No.	02242
Cracks?		Pre Sample Vacuum	-30" Hz
Room Dimer		Sample Depth (ft)	<u>~2.0"</u>
Tie Meas.1	719 to doorwall (W)	Purge Time	1456-1508
Tie Meas. 2	14'9' to 5 wall	Purge Rate	200 mc/ain
Tie Meas. 3	30'9" to Nwall	Purge Volume	2.5 上
	教徒 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Begin Sample Time	509
FIELD PARA	AMETERS:	End Sample Time	1547
	0 3676	End Sample Vacuum	-4.0" 45
Sample Met	nod Ruge 2.5 (Hurryn S	chabillation cell then	attack Druma
Sample Des	cription Sub Slab Vapor		<u> </u>
: 	Indoor Air Quality	, (140-3A + 1AQ-	3B) A: upstains B: basement
PID	0		
FID	n/a	-	
CONTAINE	R DESCRIPTION:		

(Container 6L Summa O-13 L Scin. Cell	Analysis TO-15 Radon
.•		
TOTAL:	2	



1 /4



SOIL VAPOR SAMPLE LOG

Sample ID Date Time Weather	BAL-SV-009-030106 3.1.06 0931 clew, low 30s	- - -	Project/No. Sampling Personnel Duplicate ID Barometric Pressure	NP000597.0006. 20M+OBK N/4 29.29" Hg
DESCRIPTION	ON OF SAMPLE LOCATION:			
Location Facility Floor Type Cracks? Room Dimer Tie Meas. 1 Tie Meas. 2 Tie Meas. 3 FIELD PARA Sample Mett Sample Des	42 to I bean of off tank 115 to E wall 252' to N wall AMETERS: hod Pure 2.5 L throw		Cannister Type Cannister No. Flow Regulator No. Pre Sample Vacuum Sample Depth (ft) Purge Time Purge Rate Purge Volume Begin Sample Time End Sample Time End Sample Vacuum Schfilghin Cell Hen Lah ~ 15" Hick	6L Simmy 13882 23882 -28.6" Hy 7" 0917-0929 200ml/min 2.5 L 0931 1011 -4.0" Hy affach Summa
PID FID	116 ppm n/9	· · ·	-	

CONTAINER DESCRIPTION:

TOTAL:

Container 6L Summa	Analysis TO-15
0.13L Scia.cell	Radion
2	

Location Diagram (Show Ties)

115'

2 Su-9

I-beam supporting

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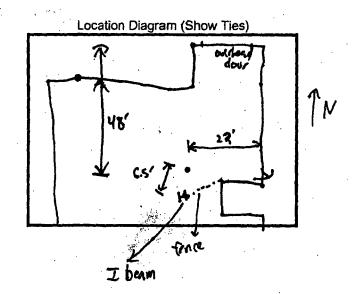


# **SOIL VAPOR SAMPLE LOG**

Sample ID BAL - 5V - 010 - 022806	Project/No.	NP000597.0006.	
Date 2.28.06	Sampling Personnel	POM+DBK	
Time 1326	Duplicate ID	n/a	
Weather mostly clcv, low 30s	Barometric Pressure	29.35" Hg	•
DESCRIPTION OF SAMPLE LOCATION:	. •		
Location Hunsinger Plastics (HPE)	Cannister Type	6L Summa	
Facility Former BES	Cannister No.	9544	
Floor Type Concrete	Flow Regulator No.	9544	
Cracks?	Pre Sample Vacuum	-30.0 11 Hg	
Room Dimensions	Sample Depth (ft)	Drilled Ng", hanging pro	e ~ 3
Tie Meas. 1 21 to door wall	Purge Time	1341-1353 above 6	n ttom
Tie Meas. 2 G.S' to I - beam	Purge Rate	200 mL/min	
Tie Meas. 3 48 to N wall now overled door	Purge Volume	2.5 L	
	Begin Sample Time	1355	
FIELD PARAMETERS:	End Sample Time	143/	
	End Sample Vacuum	-4.5" Ha	
Sample Method 6 L SUMMA,	sub slab, To-	15 analysis	,
Sample Description Sub Slab Vapor			
PID 5.2 gom; backgroud: 0.5	DOM		
FID N/9	<b>™</b>		
	<del></del>	·	

### CONTAINER DESCRIPTION:

	Container 6L Summa 0.13 L Scin. (ell	Analysis TO-15 Radon
•		
	***************************************	
TOTAL:	a	



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11 SOIL VAPO	OR SAMPLE LOG	
Sample ID  Date  Time  Weather  DESCRIPTION OF SAMPLE LOCATION:	Project/No. Sampling Personnel Duplicate ID Barometric Pressure	NP000597.0006.  0 BL, RDM  29. 36" (49
1	Cannister Type Cannister No. Flow Regulator No. Pre Sample Vacuum Sample Depth (ft) Purge Time Purge Rate Purge Volume Begin Sample Time End Sample Time End Sample Vacuum	66 SUMMA 23986 23786 -33" Hy 3" 1055-1107 200 mc/min 2.5 L 1107- 1150 -4.4" Hy affal Summa
PID  A/a  CONTAINER DESCRIPTION:  Container 6L Summa 0.13L Sch.(cll)  Pedon  TOTAL: 2	Loca	tion Diagram (Show Ties)



Sample ID AA - West	Project/No.	NP000597.0006.00004
Date <u>8/28/06</u>	Sampling Personnel	R.Gorrie, A. Faulkner
Time	Duplicate ID	
WeatherShowes	Barometric Pressure	998 mb/h Pa
<b>J</b>	Corresponding Subslab ID	
DESCRIPTION OF SAMPLE LOCATION:		
Location West sile of facility	Cannister Type	6 L Summa
Facility Former BES	Cannister No.	33945
Floor Type	Flow Regulator No.	FC00251
Cracks?	Pre Sample Vacuum	-30 mm Ha
Room Dimensions	Begin Sample Time	1145
Tie Meas.1 4.5	Mid Sample Time	1515
Tie Meas. 2 6.5	Mid Sample Vacuum	-18 11 Hg
Tie Meas. 3	End Sample Time	2125
Intake Height ~3 4 .	End Sample Vacuum	-5" Ha
FIELD PARAMETERS:		J
		·
Sample Method TA SOP.	<del></del>	
	ample on west side	of facility.
	ample on west side	of facility.
	ample on west side	of facility.
Sample Description Ambunt ar Sa	ample on west side	of facility.
Sample Description  Ambunt ar Sample Description  PID  6.0 ppm.		
Sample Description  Ambuent ar Sample Description  PID  6.0 ppm.  FID	anpk on west side	
Sample Description  Ambunt ar 5		
Sample Description  Ambunt an Sample Description  PID 6.0 ppm.  FID  CONTAINER DESCRIPTION:		
Sample Description  PID  6.0 ppm.  FID  CONTAINER DESCRIPTION:  Container  Analysis		
Sample Description  Ambunt an Sample Description  PID 6.0 ppm.  FID  CONTAINER DESCRIPTION:		
Sample Description  PID  6.0 ppm.  FID  CONTAINER DESCRIPTION:  Container  Analysis		
Sample Description  PID  6.0 ppm.  FID  CONTAINER DESCRIPTION:  Container  Analysis		m (Show Ties)
Sample Description  PID  6.0 ppm.  FID  CONTAINER DESCRIPTION:  Container  Analysis		m (Show Ties)
Sample Description  PID  6.0 ppm.  FID  CONTAINER DESCRIPTION:  Container  Analysis		m (Show Ties)
PID  BOO PPIN  FID  CONTAINER DESCRIPTION:  Container Analysis 6L Summa TO-15		m (Show Ties)
Sample Description  PID  6.0 ppm.  FID  CONTAINER DESCRIPTION:  Container  Analysis		m (Show Ties)
PID  BOO PPIN  FID  CONTAINER DESCRIPTION:  Container Analysis 6L Summa TO-15		m (Show Ties)



Sample ID	AA - Car	t	Project/No.	NP000597.0006.00004
Date	6/28/06		Sampling Personnel	R.Gorrie, A. Faulkner
Time	1110		Duplicate ID	
Weather	Cloudy, St	WULK.	Barometric Pressure	998 my 4 Pa
			Corresponding Subslab ID	
DESCRIPTION	OF SAMPLE LOCA	ATION:		
Location	Cast side o	facility	Cannister Type	6 L Summa
Facility	Former BES	<del></del>	Cannister No.	22500
Floor Type			Flow Regulator No.	3 FC00287
Cracks?			Pre Sample Vacuum	7-30 1 Kg
Room Dimensi	ons		Begin Sample Time	1140
Tie Meas.1	241		Mid Sample Time	1526
Tie Meas. 2	33′	,	Mid Sample Vacuum	-19. "Kg
Tie Meas. 3	1.3'		End Sample Time	2010
Intake Height	~31		End Sample Vacuum	-4.5" Ha
FIELD PARAM	IETERS:	A Company	•	
Sample Method		SOP.		
Sample Descri	ption Am	bient air e	n east side of fa	eclity.
Sample Descri		bient air e	en east side of fo	ectify.
Sample Descri PID FID	ption Am	bient air e	Location Diagram	т (Show Ties)
Sample Descri PID FID	ption Am	bient air e	Location Diagram	m (Show Ties)
Sample Descri PID FID	DESCRIPTION:	blent air c pm Analysis	-	m (Show Ties)



	T	m	
Sample ID	IA-A-1	Project/No.	NP000597.0006.00004
Date	8/28/06	Sampling Personnel	R.Gorrie, A. Faulkner
Time	1210	Duplicate ID	IA-A-1 (dup)
Weather	Cloudy	Barometric Pressure	998 mb/h Pa
	3	Corresponding Subslab ID	55-A-1
DESCRIPTION	OF SAMPLE LOCATION:		
Location	Impress Industries	Cannister Type	lo L Summa
Facility	Former BES	Cannister No.	13670 /95671 (due)
Floor Type	concrete	Flow Regulator No.	FCONGIST FCOO831(dup)
Cracks?		Pre Sample Vacuum	>-30 mnHg/-30 mm Hg
Room Dimensi	ons	Begin Sample Time	1225
Tie Meas.1	3.5 1	Mid Sample Time	(-16.5 Mg)-110 "Ha
Tie Meas. 2	6.5	Mid Sample Vacuum	3 1600
Tie Meas. 3	14.51	End Sample Time	2100
Intake Height	3'	End Sample Vacuum	-5.0"/-5.0"
FIELD PARAM	IETERS:	•	
•	<b>A</b>		
Sample Method			
Sample Method		ress bulding: - Hany	duty engine clasher/degrease (en
Sample Descri	ption Outside Daps	ress bulding: - Hoory Auch	duch engine clasher/degread (engine Br
•		ress bulding: - Hoavy Acti	duch, engine clasher/degrease (eng. Br - Kustoleum Br (acetore, xylane)
Sample Descri	ption Outside Daps	<u>-</u>	(acetore, xylare)
Sample Descrip	ption Outside Daps	ress bulding: — Havy Augus Location Diagran	(acetore, xylare)
Sample Descrip	O.O ppm	<u>-</u>	n (Show Ties)
Sample Descrip PID FID	O.O ppm	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID	O. O ppm  DESCRIPTION:	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID CONTAINER D	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID CONTAINER D	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)
Sample Descrip PID FID CONTAINER D	O. O ppm  DESCRIPTION:  Container Analysis	  Location Diagrar	n (Show Ties)

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ARCADIS G&M

Sample ID	TA A-2	Project/No.	NP000597.0006.00004
Date	808106	Sampling Personnel	R.Gorrie, A. Faulkner
Time	1120	Duplicate ID	
Weather	Cloudy, showers	Barometric Pressure	998 mb/hPa
	3,	Corresponding Subslab ID	55-A-2
DESCRIPTION	OF SAMPLE LOCATION:	· .	
Location	Hunsoger Plastics	Cannister Type	6 L Summa
Facility	Former BES	Cannister No.	35142
Floor Type	concrete	Flow Regulator No.	*CO0437/10770
Cracks?		Pre Sample Vacuum	-30 mm Ha
Room Dimensi		Begin Sample Time 🧳	. 1200
Tie Meas.1	0.5	Mid Sample Time	1520
Tie Meas. 2	151	Mid Sample Vacuum	-21 11 Hg
Tie Meas. 3	25	End Sample Time	25 25 22
Intake Height	3'	End Sample Vacuum	-1 1a - 16.5"Ha
FIELD PARAM	ETERS:		J J
Sample Method	IA SOP		
Sample Descrip	otion <u>Hunsner P</u>	ashce indoor ain.	
•	01	also pen labored PVC	
PID	0.0.		
FID			· ·
			ı (Show Ties)
CONTAINER	ESCRIPTION;	Location Diagram	<u> </u>
CONTAINER D		Lucation Diagram	200
CONTAINER D	Container Analysis 6L Summa TO-15	Lucation Diagram	<b>1 1 1 1 1 1 1 1 1 1</b>
CONTAINER D	Container Analysis	Lucation Diagram	
CONTAINER D	Container Analysis	Lucation Diagram	
CONTAINER D	Container Analysis	Scallor Diagram	
CONTAINER D	Container Analysis	Se de la constant de	Theon Land
CONTAINER D	Container Analysis	See 14	Theor theory of the other of th
	Container Analysis	Eccation Diagram	protessary over
Total	Container Analysis	Eccation Diagram	15' Le Ivan protessang over
	Container Analysis	Telan Sast	protessary over
	Container Analysis	English Playlan	15. Le Ibean protessava protessava
	Container Analysis	Tippe See The	protections  protections  grades
	Container Analysis	Frank asst. Black asst.	proceeding over
	Container Analysis	Starts as The starts are the start are the starts are the starts are the start are	processory over

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ARCADIS G&M

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	· ·	
Sample ID <u>TA-A-4</u>	Project/No.	NP000597.0006.00004
Pate 8/28/06	Sampling Personnel	R.Gorrie, A. Faulkner
ime 1050	Duplicate ID	·
Veather Cloudy, Should	Barometric Pressure	997 mb/hPa
	Corresponding Subslab I	D SS-A-4
ESCRIPTION OF SAMPLE LOCATION:		
ocation bream Woodw	Cannister Type	3 6L Summa
acility Former BES	Cannister No.	3 3 3 8 7
oor Type	Flow Regulator No.	FC00796
racks? no.	Pre Sample Vacuum	-30 min Ha
oom Dimensions	Begin Sample Time	1105
e Meas.1	Mid Sample Time	1510
ie Meas. 2	Mid Sample Vacuum	-15.5" Ha
ie Meas. 3	End Sample Time	2000
ntake Height	End Sample Vacuum	-5.5" Ha
IELD PARAMETERS:	<del></del>	
ID	<del></del>	spray adhosive, could in main re
	Location Diagr	ram (Show Ties)
ONTAINER DESCRIPTION:		
Container	Analysis	
•	-15	
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		hallway
otal		Provide the second seco
		rangal
	-	rangaly
		rangag
	day to 8	Tallyaly.
	dertse	rangaty.
	don'to show	rangay.



#### INDOOR AIR QUALITY SAMPLE LOG

		•	•
Sample ID	IA - A-5	Project/No.	NP000597.0006.00004
Date	8/28/06	Sampling Personnel	R.Gorrie, A. Faulkner
Time		Duplicate ID	
Weather	Cloudy, rain showers.	Barometric Pressure	997 mb/hPa
		Corresponding Subslab ID	SS - 4 - 5
DESCRIPTIO	ON OF SAMPLE LOCATION:		
Location	Emply area (former T. G. Packara)	Cannister Type	<u>EL Summa</u>
Facility	Former BES	Cannister No.	0 0
Floor Type	Correrle	Flow Regulator No.	<u> </u>
Cracks?		Pre Sample Vacuum	-30 worklar
Room Dimens	sions	Begin Sample Time	1030
Tie Meas.1		Mid Sample Time	1455
Tie Meas. 2		Mid Sample Vacuum	-13.5 PM Ha
Tie Meas. 3		End Sample Time	1830
Intake Height		End Sample Vacuum	-5 ° Hq
FIELD PARA			
Sample Desc	ription IA sample a	t tomer 16 Packa	gng. 3 above ground
PID	0.0 ppm	, -	
FID	<u> </u>	•	
•		Location Diagran	n (Show Ties)
CONTAINER	DESCRIPTION:		2
•	Container Analysis 6L Summa TO-15		1
•	or anima	1 ) "	
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•		1	× 5
•		}	نع
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Total			
Total		SE	
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Total		a shared	The



#### **INDOOR AIR QUALITY SAMPLE LOG**

Sample ID Date Time Weather	TA-A-6 8/28/06 Cloudy, rain shows	Project/No. Sampling Personnel Duplicate ID Barometric Pressure Corresponding Subslab ID	NP000597.0006.00004  R.Gorrie, A. Faulkner
DESCRIPTION	OF SAMPLE LOCATION:		
Location Facility Floor Type Cracks? Room Dimension Tie Meas. 1 Tie Meas. 2 Tie Meas. 3 Intake Height FIELD PARAM Sample Method Sample Descrip	3' ETERS: I I.A. S.O.R	Cannister Type Cannister No. Flow Regulator No. Pre Sample Vacuum Begin Sample Time Mid Sample Time Mid Sample Vacuum End Sample Time End Sample Vacuum	61 Suma  R-5 1737 -30 h Hg  1040 (-27.5 in Hg) 1505 (-15.5 in Hc) -5 11Hg
PID FID	6.0 ppm	_	
CONTAINER D	Container Analysis 6L Summa TO-15	Location Diagram	n (Show Ties)



	and the second second		
Sample ID SS	-A-	Project/No.	NP000597.0006.00004
Date 81:	30/06	Sampling Personnel	R. Gorrie, A. Faulkner
Time		Duplicate ID	SS-A-1 (dup)
<del></del>	ouder	Barometric Pressure	29.53 "Ha
-	SAMPLE LOCATION:	e e	<del></del>
5250mm 11511 61 1	OAM EL LOOMIGIN	· ·	
Location In	press Industries	Cannister Type	6L Summa
Facility Forme	er BES	Cannister No.	13671 /1577
Floor Type	Conarte	Flow Regulator No.	FC00890/FC00785
Cracks?		Pre Sample Vacuum	-30"Ha / >-30+Ha
Room Dimensions		Sample Depth (ft)	Drobe float at 7"
Tie Meas.1	3'	Purge Time	1115-1125
Tie Meas. 2	17.6'	Purge Rate	200 ml/min
Tie Meas. 3	21.2'	Purge Volume	aL
		Begin Sample Time	
FIELD PARAMETE	RS:	End Sample Time	
"Sample Method	SS SOP	End Sample Vacuum	-1.5 1/g/-1' Hg
Sample Description	Sub Slab Vapor	Total dolled ~	9". Floated probe at 7"
	* 9		
PID	0.0 ppm	- CONTRACTOR -	than oferns samples.
FID		lie at -7" a	of 20 min elapsed). No spec
		— lak or noise	e noted.
CONTAINER DESC	DIDTION.		•
CONTAINER DESC	MIF HOW.		
Conta	ainer Anglysia	Loost	ion Diogram (Chau Tian)
. 6L Su		Locat	ion Diagram (Show Ties)
02.00	10 14	—   <del> </del>	boxes?
		_	Q II
	<del></del>	—   <u> </u>	
	<del></del>	- Intelligence	
		Walking	
TOTAL:	<del></del> 1	— T.L.	
		المعلى المعلى المعلى	cur
		1 4 4 5 K	: est



Sample ID SS-A-Q	Project/No.	NP000597.0006.00004
Date 830/06	Sampling Personnel	R. Gorrie, A. Faulkner
Time 840	Duplicate ID	
Weather Cloudy	Barometric Pressure	29.53 "Hg
DESCRIPTION OF SAMPLE LOCATION:		_
Location Hunsman Plastics	Cannister Type	6 L Summa
Facility Former BES	Cannister No.	31133
Floor Type Concrete	Flow Regulator No.	FC00 144
Cracks?ho	Pre Sample Vacuum	7-30"149
Room Dimensions	Sample Depth (ft)	drilled - 8", floated at 6"
Tie Meas.1 3.9	Purge Time	911-924
Tie Meas. 2 13.7'	Purge Rate	200 mymin
Tie Meas. 3	Purge Volume	2L
	Begin Sample Time	924
FIELD PARAMETERS:	End Sample Time	1028
S4 S4N	End Sample Vacuum	-2" Hg
Sample Method S5 S0		
Sample Description Sub Slab Vapor	16	<del></del>
PID 18.1 (bl(qd =0.4)	DDM.	
FID	7	
	<b></b>	·
CONTAINER DESCRIPTION:	<i>r</i> .	
		·
Container Analysis	Locati	ion Diagram (Show Ties)
6L Summa TO-14	_	No
	_	3
· · · · · · · · · · · · · · · · · · ·	_	1
	_	1 2
		FT -
	- § []	4
TOTAL:	- 8 )	The state of the s

AR100838



ARCADIS G&M

•		
Sample ID SS-A-3	Project/No.	NP000597.0006.00004
Date 8/30/66	Sampling Personnel	R. Gorrie, A. Faulkner
Time /436	Duplicate ID	
Weather Cloude	Barometric Pressure	29.5 "Ha
J	•	
DESCRIPTION OF SAMPLE LOCATION:		
Location Lucianos (former Storage	Cannister Type	_ la L Summa
Facility Former BES	Cannister No.	34421
Floor Type Concrete	Flow Regulator No.	FC00185
Cracks?	Pre Sample Vacuum	7-30 "Ha
Room Dimensions	Sample Depth (ft)	Dallad 4" through Eleb. Plast at 4"
Tie Meas.1 /8.5	Purge Time	1514-1524
Tie Meas. 2 17.8	Purge Rate	200 ml/min
Tie Meas. 3 17.5'	Purge Volume	2 L
	Begin Sample Time	15 a5
FIELD PARAMETERS:	End Sample Time	1635
	End Sample Vacuum	-2" Ha
Sample Method SS S6P		<del></del>
Sample Description Sub Slab Vapor		1
FID 3/9:2.1-4.9; 2.1 at	<u>-ho</u> le. 	
CONTAINER DESCRIPTION:		D = T - beam
Container Analysis	Loca	tion Diagram (Show Ties)
6L Summa TO-14		
·		
4		_1 _ 3
	_ \   511	
TOTAL:	_ >  \\:	. 3
•		
		÷/-y-3
	2 4	23
		2-3-2-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3
f:\stds\forms\Soil Vapor Sample.xls		22 2



Sample ID	SS-A-4	Project/No.	NP000597.0006.00004
Date	8129106	Sampling Personnel	R. Gorrie, A. Faulkner
Time	915	Duplicate ID	
Weather	Cloudy, showers	Barometric Pressure	
DESCRIPTION	ON OF SAMPLE LOCATION:		•
Location	Creamis Woodwarking	Cannister Type	GL Summa
Facility	Former BES	Cannister No.	2 4496
Floor Type	Conarek/linateum tile	Flow Regulator No.	F C004219
Cracks?	none.	Pre Sample Vacuum	>-30 " Ha
Room Dimer		Sample Depth (ft)	(e')
Tie Meas.1	<i>p.3</i>	Purge Time	955-1007 (12 min)
Tie Meas. 2	3.75	Purge Rate	200 mL/min
Tie Meas. 3	<u> </u>	Purge Volume	<u> 2L</u>
		Begin Sample Time	1008
FIELD PAR	AMETERS:	End Sample Time	1100
	CE CAD	End Sample Vacuum	
Sample Met		<del></del>	
Sample Des	cription Sub Slab Vapor	· · · · · · · · · · · · · · · · · · ·	
PID	2.5	· · · · · · · · · · · · · · · · · · ·	
FID.	<u> </u>	<del></del>	
רוט .	·	<del>-</del>	: .
CONTAINE	R DESCRIPTION:	10	
		OT -00b	to likeway door
,	Container Analysis	Local	tion Diagram (Show Ties)
	6L Summa TO-14	Loca Loca	
			7.8
•		19.4	8.75
		_  41-1	H-1H-
	·	_ 100	Me
		_	
TOTAL:			
•	•		
	•	. [	



Sample ID SS-A-5 Date 8/29/06	Project/No. Sampling Personnel	NP000597.0006.00004 R. Gorrie, A. Faulkner
Time //.35	Duplicate ID	
Weather Cloudy, shaces	Barometric Pressure	29.32" Hy
DESCRIPTION OF SAMPLE LOCATION:		· .
Location Former STW (emply room)	Cannister Type	6 L Summa
Facility Former BES	Cannister No.	4064
Floor Type General A-shall	Flow Regulator No.	FC00732
Cracks?	Pre Sample Vacuum	-30 " Ha
Room Dimensions	Sample Depth (ft)	" " " " " " " " " " " " " " " " " " "
Tie Meas.1	Purge Time	1218-1228
Tie Meas. 2	Purge Rate	200 mymin
Tie Meas. 3 30.6'	Purge Volume	~2 L
	Begin Sample Time	1228
FIELD PARAMETERS:	End Sample Time	1326
	End Sample Vacuum	0 Mg
Sample Method 25 Sof		
Sample Description Sub Slab Vapor .	- drilled 124, same	led at 11"
· · · · · · · · · · · · · · · · · · ·		
PID 50 pain (max)		
FID		
CONTAINER DESCRIPTION:		* Ibean
Container Analy	sis Locat	ion Diagram (Show Ties)
6L Summa TO-14	20000	Viagram (Grow 165)
	<del></del>	
		./2
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in the second se	·**	11/
TOTAL:		1019
101AL	1 70-1	
	Re-	
	3	!
	<del></del>	
		, (p



Sample ID SS-	1-6	Project/No.	NP000597.0006.00004	
Date 8/2	29/06	Sampling Personnel	R. Gorrie, A. Faulkner	
Time /45		Duplicate ID		
	he shower	Barometric Pressure	29.32" Mg	
DESCRIPTION OF SA	MPLE LOCATION:			
<b>A</b> 1.			, <b>v</b> .	
Location Cuthn	a Edge	Cannister Type	6 L Summa	
Facility Former E		Cannister No.	10781	
Floor TypeC	oncycle	Flow Regulator No.	FC0946	
Cracks?	none	Pre Sample Vacuum	-30 MA	
Room Dimensions	<del> </del>	Sample Depth (ft)	8"	
Tie Meas.1	8	Purge Time	1507-1517	
	<u>.ସ୍</u>	Purge Rate	200 mymin	
Tie Meas. 3	<u>.3</u>	Purge Volume	2 Liters	
		Begin Sample Time	<i>1517</i>	
FIELD PARAMETERS	:	End Sample Time	1620	
	00 00	End Sample Vacuum	- 7.0 "Ha (zerodat	-6×
On the State Of the Control of the C	(6, 6,2)			
Sample Method	SS SOP			
Sample Method Sample Description	Sub Slab Vapor			
· · · · · · · · · · · · · · · · · · ·	Sub Slab Vapor	voller seros at le "Hg.	Polled ~ 9 %.	
Sample Description	Sub Slab Vapor	voller zeros at le "Hg.	Proled -9".	à.
Sample Description	Sub Slab Vapor Not: Aw (ont	holler seros at -6"Hg.	Polled ~ 9 %.	
Sample Description PID	Sub Slab Vapor Not: Aw (ont	holler seros at -6"Hg.	Profest ~ 9".	
Sample Description PID	Sub Slab Vapor  Note: Aw (onto		~ 0	
Sample Description  PID	Sub Slab Vapor  Note: Aw (onto		Daled ~ 9".	
Sample Description  PID	Sub Slab Vapor  Note: Aw Conf		Thomas I possin	
Sample Description  PID 6  FID  CONTAINER DESCRI	Sub Slab Vapor  Note: Reco Conf		Town tion Diagram (Show Ties)	
Sample Description  PID	Sub Slab Vapor  Note: Reco Conf		Thomas I possin	<b>\6</b>
Sample Description  PID 6  FID  CONTAINER DESCRI	Sub Slab Vapor  Note: Reco Conf		Town tion Diagram (Show Ties)	Safe
Sample Description  PID 6  FID  CONTAINER DESCRI	Sub Slab Vapor  Note: Reco Conf		Town tion Diagram (Show Ties)	South Control
Sample Description  PID 6  FID  CONTAINER DESCRI	Sub Slab Vapor  Note: Reco Conf		Town tion Diagram (Show Ties)	SOL
Sample Description  PID 6  FID  CONTAINER DESCRI	Sub Slab Vapor  Note: Reco Conf		Town tion Diagram (Show Ties)	
Sample Description  PID 6  FID  CONTAINER DESCRI	Sub Slab Vapor  Note: Reco Conf		tion Diagram (Show Ties)	San A
Sample Description  PID	Sub Slab Vapor  Note: Reco Conf		Town tion Diagram (Show Ties)	
Sample Description  PID	Sub Slab Vapor  Note: Reco Conf		tion Diagram (Show Ties)	Sande .



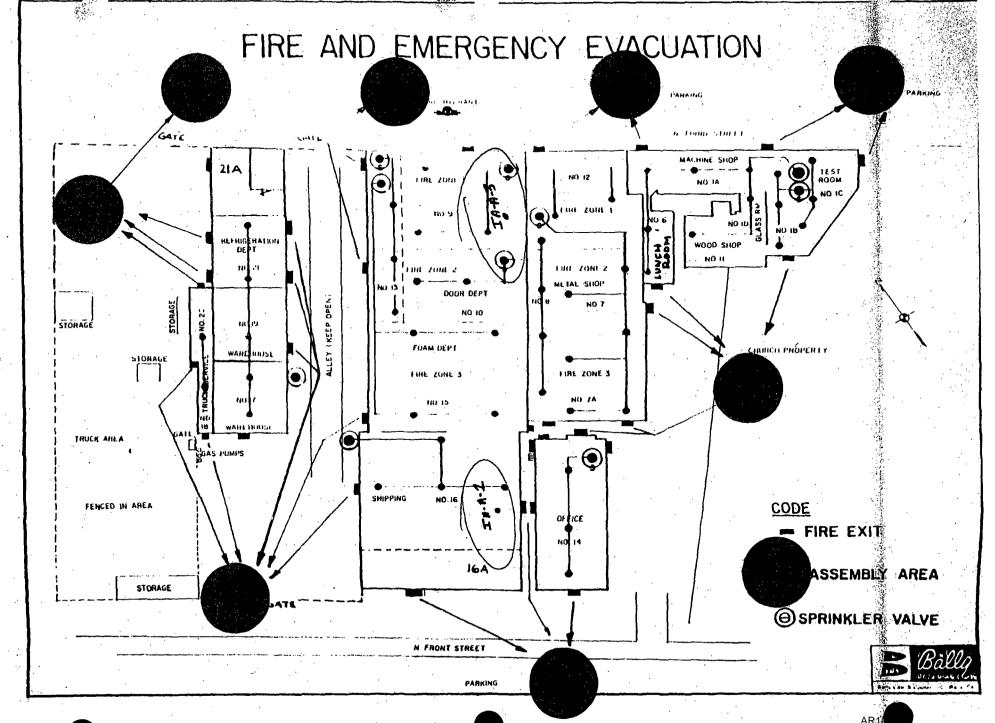
## INDOOR AIR QUALITY SAMPLE LOG

Sample ID	IA-A-1-101206	Project/No.	NP000597.0006.00004
Date	10/12/2006	Sampling Personnel	C. Sharpe
Time		Duplicate ID	NA
-	16:30	Barometric Pressure	
Weather	i ver Cast	Corresponding Subslab ID	MA
DESCRIPTION	OF SAMPLE LOCATION:	Corresponding Cubsian in	
Location	Impress Industries	Cannister Type	6 L Summa
Facility	Former BES	Cannister No.	24224
Floor Type	Concrete	Flow Regulator No.	24224
Cracks?	<u> </u>	Pre Sample Vacuum	28 "Hg
Room Dimension		Begin Sample Time	07:19
Tie Meas.1		Mid Sample Time	18:03
Tie Meas. 2		Mid Sample Vacuum	16" +12
Tie Meas. 3		End Sample Time	1630
Intake Height		End Sample Vacuum	9"H7
FIELD PARAM	ETERS:		Note 0=5inHy
Sample Method Sample Descrip	· · · · · · · · · · · · · · · · · · ·	ple Colected to	Verify Previous
PID		<u>.</u>	
FID	NA	· _	
		Location Diagrar	m (Show Ties)
CONTAINER D	ESCRIPTION:		
,	Container Analysis 6L Summa TO-15		
Total			Le Covered Walkway



#### INDOOR AIR QUALITY SAMPLE LOG

Sample ID	IA-A-3-101206	Project/No.	NP000597.0006.00004
Date	10/12/2006	Sampling Personnel	C. Sharpe
Time	15:31	Duplicate ID	A/A
Weather	P. Sunny	Barometric Pressure	-
		Corresponding Subslab ID	A/la
DESCRIPTION	OF SAMPLE LOCATION:	•	•
Location	Impress Industries	Cannister Type	6 L Summa
Facility	Former BES	Cannister No.	141001
Floor Type	Concrete	Flow Regulator No.	1410g
Cracks?		Pre Sample Vacuum	28 in Hg
Room Dimension		Begin Sample Time	0755
Tie Meas.1	47 ft	Mid Sample Time	12:05
Tie Meas. 2	10H	Mid Sample Vacuum	_ Hg
Tie Meas. 3	30 ff	End Sample Time	1621
Intake Height	6 ft	End Sample Vacuum	7 in HC
FIELD PARAM	ETERS:	•	(Zem =C)
	· · · · · · · · · · · · · · · · · · ·		(200-3)
Sample Method		0 // 0	
Sample Method Sample Descrip	<del></del>	gle Collected	IN E Corner of Warehouse
•		wall penetrations by	IN E General Garehouse
•	otion Indoor Air Son		IN E Corner of Warehouse x pipes
Sample Descri	ption Indoor Air Son		IN E Corner of Warehouse x pipes
Sample Descrip	ption Index Air Son near Soveral		pipes
Sample Descrip PID FID	ption Index Air Son near Soveral	Location Diagram	m (Show Ties)
Sample Descrip PID FID	ption Index Air Son  near Sovered  NA  NA	Location Diagram	pipes
Sample Descrip PID FID	DESCRIPTION:	Location Diagram	m (Show Ties)
Sample Descrip PID FID	DESCRIPTION:	Location Diagram	m (Show Ties)
Sample Descrip PID FID	DESCRIPTION:  Container  Timber Air Son  NA  NA  NA  NA  NA  Analysis	Location Diagram	m (Show Ties)
Sample Descrip PID FID	DESCRIPTION:  Container  Timber Air Son  NA  NA  NA  NA  NA  Analysis	Location Diagram	m (Show Ties)
Sample Descrip PID FID	DESCRIPTION:  Container  Timber Air Son  NA  NA  NA  NA  NA  Analysis	Location Diagram	m (Show Ties)
Sample Descrip PID FID	DESCRIPTION:  Container  Timber Air Son  NA  NA  NA  NA  NA  Analysis	Location Diagram	m (Show Ties)
Sample Descrip PID FID	DESCRIPTION:  Container  Timber Air Son  NA  NA  NA  NA  NA  Analysis	Location Diagram	m (Show Ties)  - & " overled p.pl  1  Overled unit
Sample Descrip PID FID	DESCRIPTION:  Container  Timber Air Son  NA  NA  NA  NA  NA  Analysis	Location Diagram	m (Show Ties)
Sample Descrip PID FID CONTAINER D	DESCRIPTION:  Container  Timber Air Son  NA  NA  NA  NA  NA  Analysis	Location Diagram	m (Show Ties)  - & " overled p.pl  1  Overled unit
Sample Descrip PID FID CONTAINER D	DESCRIPTION:  Container  Timber Air Son  NA  NA  NA  NA  NA  Analysis	Location Diagram	m (Show Ties)  - & " overled p.pl  1  Overled unit



# **ARCADIS**

#### Appendix C

Laboratory Data Packages

#### WORK ORDER #: 0602635

Work Order Summary

CLIENT:

Ms. Diane Wisbeck

Arcadis G&M. Inc.

nc

1114 Benfield Blvd., Suite A

Millersville, MD 21108

BILL TO:

Mr. Christopher Sharpe

Arcadis G&M, Inc.

6 Terry Dr., Suite 300

Newtown, PA 18940

PHONE:

410-987-0032

P.O. #

FAX:

410-987-4392

PROJECT #

NP597.6 AH Bally

DATE RECEIVED: DATE COMPLETED: 02/27/2006 03/09/2006

CONTACT:

Kelly Buettner

			RECEIPT
FRACTION #	<u>NAME</u>	<u>TEST</u>	VAC./PRES.
01A	BAL-IAQ-04-022406	Modified TO-15 SIM	5.0 "Hg
02A	BAL-IAQ-05-022406	Modified TO-15 SIM	12.0 "Hg
03A	BAL-IAQ-06-022406	Modified TO-15 SIM	7.5 "Hg
03AA	BAL-IAQ-06-022406 Duplicate	Modified TO-15 SIM	7.5 "Hg
04A	BAL-IAQ-01-022406	Modified TO-15 SIM	5.0 "Hg
05A	BAL-IAQ-02-022406	Modified TO-15 SIM	6.0 "Hg
06A	BAL-IAQ-03B-DUP-022406	Modified TO-15 SIM	- 6.0 "Hg
07A	BAL-IAQ-03B-022406	Modified TO-15 SIM	6.0 "Hg
08A	BAL-IAQ-03A-022406	Modified TO-15 SIM	4.5 "Hg
09A	BAL-IAQ-07-022406	Modified TO-15 SIM	10.5 "Hg
09AA	BAL-IAQ-07-022406 Duplicate	Modified TO-15 SIM	10.5 "Hg
10A	BAL-IAQ-DW-022406	Modified TO-15 SIM	5.0 "Hg
11A	BAL-IAQ-VW-022406	Modified TO-15 SIM	3.5 "Hg
12A	Lab Blank	Modified TO-15 SIM	NA

**CERTIFIED BY:** 

13A

14A

Sinda d. Fruman

. 03/09/06

Modified TO-15 SIM

Modified TO-15 SIM

Laboratory Director

**CCV** 

LCS

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004 NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

NA

NA



# **Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM**

Client Sample ID: BAL-IAQ-04-022406

Lab ID#: 0602635-01A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.016	1.9	0.064	7.4
1,1,1-Trichloroethane	0.032	1.5	0.18	8.4
Trichloroethene	0.032	9.0	0.17	48

Client Sample ID: BAL-IAQ-05-022406

Lab ID#: 0602635-02A

Compound	Rpt. Limit	Amount	Rpt. Limit	Amount
	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.022	9.3	0.088	37
1,1,1-Trichloroethane	0.045	2.4	0.24	13
Trichloroethene	0.045	1.4	0.24	7.7

Client Sample ID: BAL-IAQ-06-022406

Lab ID#: 0602635-03A

Compound	Rpt. Limit	Amount	Rpt. Limit	Amount
	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.018	13	0.071	53
1,1,1-Trichloroethane	0.036	3.6	0.20	19
Trichloroethene	0.036	0.95	0.19	5.1

Client Sample ID: BAL-IAQ-06-022406 Duplicate

Lab ID#: 0602635-03AA

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.018	13	0.071	52
1,1,1-Trichloroethane	0.036	3.6	0.20	20
Trichloroethene	0.036	0.96	0.19	5.2

Client Sample ID: BAL-IAQ-01-022406

Lab ID#: 0602635-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
1,1-Dichloroethene	0.016	0.91	0.064	3.6
1,1,1-Trichloroethane	0.032	0.99	0.18	5.4



# **Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM**

Client Sample ID: BAL-IAQ-01-022406

Lab ID#: 0602635-04A

Trichloroethene

0.032

7.4

0.17

40

Client Sample ID: BAL-IAQ-02-022406

Lab ID#: 0602635-05A

Compound	Rpt. Limit	Amount	Rpt. Limit	Amount
	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.017	0.077	0.067	0.30
1,1,1-Trichloroethane	0.034	0.079	0.18	0.43
Trichloroethene	0.034	0.46	0.18	2.5

Client Sample ID: BAL-IAQ-03B-DUP-022406

Lab ID#: 0602635-06A

Compound	Rpt. Limit	Amount	Rpt. Limit	Amount
	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.017	0.018	0.067	0.070
1,1,1-Trichloroethane	0.034	0.073	0.18	0.40
Trichloroethene	0.034	0.26	0.18	1.4

Client Sample ID: BAL-IAQ-03B-022406

Lab ID#: 0602635-07A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1,1-Trichloroethane	0.034	0.070	0.18	0.38
Trichloroethene	0.034	0.26	0.18	1.4

Client Sample ID: BAL-IAQ-03A-022406

Lab ID#: 0602635-08A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.016	0.016	0.063	0.065
1,1,1-Trichloroethane	0.032	0.076	0.17	0.42
Trichloroethene	0.032	0.55	0.17	2.9

Client Sample ID: BAL-IAQ-07-022406

Lab ID#: 0602635-09A



# Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

Client Sample ID: BAL-IAQ-07-022406

Lab ID#: 0602635-09A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
Trichloroethene	0.041	0.080	0.22	0.43

Client Sample ID: BAL-IAQ-07-022406 Duplicate

Lab ID#: 0602635-09AA

Compound	Rpt. Limit	Amount	Rpt. Limit (uG/m3)	Amount
	(ppbv)	(ppbv)		(uG/m3)
Trichloroethene	0.041	0.083	0.22	0.45

Client Sample ID: BAL-IAQ-DW-022406

Lab ID#: 0602635-10A

No Detections Were Found.

Client Sample ID: BAL-IAQ-VW-022406

Lab ID#: 0602635-11A

No Detections Were Found.

Client Sample ID: BAL-IAQ-04-022406

Lab ID#: 0602635-01A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

		de la la			\$0.780 E
File Name:	6030705	. E. &	<b>Date of Collect</b>	tion: 2/24/06	150
Dil. Factor:	1.61	100 mg	Date of Analys	sis: 3/7/06 03:15 PM	
2	ACT				

Carran	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
Vinyl Chloride	0.016	Not Detected	0.041	Not Detected
1,1-Dichloroethene	0.016	1.9	0.064	7.4
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.032	1.5	0.18	8.4
Trichloroethene	0.032	9.0	0.17	48

		INICITION	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	104	70-130	
Toluene-d8	115	70-130	
4-Bromofluorobenzene	90	70-130	

#### Client Sample ID: BAL-IAQ-05-022406

Lab ID#: 0602635-02A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

Dil. Factor: Date of Analysis: 3/7/06 03:53 PM	File Name: 603070	22	Date of Collection: 2/	・ ・ 一、 「強いましょう と「漢
------------------------------------------------	-------------------	----	------------------------	--------------------

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.022	Not Detected	0.057	Not Detected
1,1-Dichloroethene	0.022	9.3	0.088	37
1,1-Dichloroethane	0.045	Not Detected	0.18	Not Detected
cis-1,2-Dichloroethene	0.045	Not Detected	0.18	Not Detected
1,1,1-Trichloroethane	0.045	2.4	0.24	13
Trichloroethene	0.045	1.4	0.24	7.7

		Menioa
Surrogates	. %Recovery	Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	. 97	70-130

#### Client Sample ID: BAL-IAQ-06-022406

Lab ID#: 0602635-03A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: 6030707	Date of Collection: 2/24/06
Dil. Factor:	Date of Analysis: , 3/7/06 04:33 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.018	Not Detected	0.046	Not Detected
1,1-Dichloroethene	0.018	13	0.071	53
1,1-Dichloroethane	0.036	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.036	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane	0.036	3.6	0.20	19
Trichloroethene	0.036	0.95	0.19	5.1

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	90	70-130

#### Client Sample ID: BAL-IAQ-06-022406 Duplicate

Lab ID#: 0602635-03AA

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: Dil. Factor:	6030708 1.79		Date of Collection: Date of Analysis:	2/24/06 3/7/06 05:11 PM
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.018	Not Detected	0.046	Not Detected
1,1-Dichloroethene	0.018	13	0.071	52
1,1-Dichloroethane	0.036	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.036	Not Detected	0.14	Not Detected
1,1,1-Trichloroethane_	0.036	3.6	0.20	20
Trichloroethene	0.036	0.96	0.19	5.2

		wetnoa	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	101	70-130	
Toluene-d8	92	70-130	
4-Bromofluorobenzene	93	70-130	

#### Client Sample ID: BAL-IAQ-01-022406

Lab ID#: 0602635-04A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: Dil. Factor:	6030709 1.61		Date of Collection: Date of Analysis:	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.016	Not Detected	0.041	Not Detected
1,1-Dichloroethene	0.016	0.91	0.064	3.6
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.032	0.99	0.18	5.4
Trichloroethene	0.032	7.4	0.17	40

		. Wethou	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	102	70-130	
Toluene-d8	92	70-130	
4-Bromofluorobenzene	94	70-130	



#### Client Sample ID: BAL-IAQ-02-022406

Lab ID#: 0602635-05A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: Dil. Factor:	6030710 1.68	Date of Collection: 2/24/06 Date of Analysis: 3/7/06 06:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	0.077	0.067	0.30
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	0.079	0.18	0.43
Trichloroethene	0.034	0.46	0.18	2.5

		Metriod	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	103	70-130	
Toluene-d8	103	70-130	
4-Bromofluorobenzene	94	70-130	



#### Client Sample ID: BAL-IAQ-03B-DUP-022406

Lab ID#: 0602635-06A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

		Dat Limit	Amount	Pot Limit	Amount
Dil. Factor:	Complete the state of the	ি 1.68% জন্ত		Date of Analysis:	3/7/06 07:11 PM 🤏 🦠
File Name:		6030711		Date of Collection	
	A STATE OF THE STA	The first state of the property of the first			

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1,1-Dichloroethene	0.017	0.018	0.067	0.070
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	0.073	0.18	0.40
Trichloroethene	0.034	0.26	0.18	1.4

•	<b>N/D</b>	Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	102	70-130	
Toluene-d8	104	70-130	
4-Bromofluorobenzene	94	70-130	



#### Client Sample ID: BAL-IAQ-03B-022406

Lab ID#: 0602635-07A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

	- アンドルル Q NoteState (2015年 - 2017年 -	1 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	The state of the s	
File Name:	6030712 Dat	te of Collection: 2/24/06
Dil Factor:	1.68 Dat	te of Analysis: 3/7/06 07:53 PM 🔊 📗
50 See See See See See See See See See Se	2 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
1.1-Dichloroethene	0.017	Not Detected	0.067	Not Detected
1,1-Dichloroethane	0.034	Not Detected	0.14	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.034	0.070	0.18	0.38
Trichloroethene	0.034	0.26	0.18	1.4

Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	92	70-130

#### Client Sample ID: BAL-IAQ-03A-022406

Lab ID#: 0602635-08A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

Dil. Factor:	1.58	115 (CO) 1 (Providence of Section 1979	Date of Analysis: 3/7/06 08:39 PM		
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)	
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected	
1,1-Dichloroethene	0.016	0.016	0.063	0.065	
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected	

Not Detected

0.076

0.55

0.12

0.17

0.17

Not Detected

0.42

2.9

0.032

0.032

0.032

#### Container Type: 6 Liter Summa Canister (SIM Certified)

cis-1,2-Dichloroethene

1,1,1-Trichloroethane
Trichloroethene

	•	Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	99	70-130	
Toluene-d8	105	70-130	
4-Bromofluorobenzene	94	70-130	

#### Client Sample ID: BAL-IAQ-07-022406

Lab ID#: 0602635-09A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: 60307144 Dil. Factor: 2.06	e of Collection: 2/24/06 e of Analysis: 3/7/06 09:23 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.021	Not Detected	0.053	Not Detected
1,1-Dichloroethene	0.021	Not Detected	0.082	Not Detected
1,1-Dichloroethane	0.041	Not Detected	0.17	Not Detected
cis-1,2-Dichloroethene	0.041	Not Detected	0.16	Not Detected
1,1,1-Trichloroethane	0.041	Not Detected	0.22	Not Detected
Trichloroethene	0.041	0.080	0.22	0.43

		wethod	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	100	70-130	
Toluene-d8	103	70-130	
4-Bromofluorobenzene	92	70-130	

#### Client Sample ID: BAL-IAQ-07-022406 Duplicate

Lab ID#: 0602635-09AA

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

	MODIFIED ETA MET	MODIFIED ELA METHOD TO-13 GC/M3 SIM				
File Name: Dil. Factor:	60307,18 2.06	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	Date of Collection: Date of Analysis: 3	TT (12 % % 3.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1		
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)		
Vinyl Chloride	0.021	Not Detected	0.053	Not Detected		
1,1-Dichloroethene	0.021	Not Detected	0.082	Not Detected		
1,1-Dichloroethane	0.041	Not Detected	0.17	Not Detected		
cis-1,2-Dichloroethene	0.041	Not Detected	0.16	Not Detected		
1,1,1-Trichloroethane	0.041	Not Detected	0.22	Not Detected		
Trichloroethene	0.041	0.083	0.22	0.45		

	,	Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	99	70-130	
Toluene-d8	102	70-130	
4-Bromofluorobenzene	88	70-130	



#### Client Sample ID: BAL-IAQ-DW-022406

Lab ID#: 0602635-10A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	6030716	Date of Collection: 2/24/06
Dil. Factor:	1.61	Date of Analysis: 3/7/06 10:42 PM
ERICK AND THE STRUCK AND A STRUCK AND A STRUCK	The state of the s	and the second s

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.016	Not Detected	0.041	Not Detected
1,1-Dichloroethene	0.016	Not Detected	0.064	Not Detected
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.032	Not Detected	0.18	Not Detected
Trichloroethene	0.032	Not Detected	0.17	Not Detected

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	89	70-130

#### Client Sample ID: BAL-IAQ-VW-022406

Lab ID#: 0602635-11A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

Dil. Factor:	<u> 1.52 </u>	Carlo San	Date of Analysis: 3	7/06 11:30 PM
File Name:	6030717	was the first of the same	Date of Collection:	2/24/06
Land to the state of the state	A. 100 Sec.			
1 $\mathcal{L}^{\infty}$ , $\gamma_{ij}$ , $\gamma_{ij}$ , $\gamma_{ij}$		N 1-8	and the second section is to demand	1 Na. 25 - New 25 - 11 - 12 - 12

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.015	Not Detected	0.039	Not Detected
1,1-Dichloroethene	0.015	Not Detected	0.060	Not Detected
1,1-Dichloroethane	0.030	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.030	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.030	Not Detected	0.16	Not Detected
Trichloroethene	0.030	Not Detected	0.16	Not Detected

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	94	70-130

Client Sample ID: Lab Blank

Lab ID#: 0602635-12A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

<u> </u>		A	D-4 1 !!4	A
Dil. Factor:	1.00		Date of Analysis: 3	/7/06 01:20 PM
- 1 - 2 - 4 - 7 - 1 - 1 - 2 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3	- 0030704a		10 The Control of the	[전문] : 1877 - 다시 나는 다시 나를 다시다.
File Name:	**************************************		Date of Collection: I	ua iz ii nii nii nii
PROPERTY AND			Jan Arrows	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected

#### Container Type: NA - Not Applicable

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	104	70-130	
Toluene-d8	104	70-130	
4-Bromofluorobenzene	90	70-130	

### Client Sample ID: CCV

Lab ID#: 0602635-13A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	6030702	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/7/06 11:47 AM

Compound	%Recovery
Vinyl Chloride ·	110
1,1-Dichloroethene	92
1,1-Dichloroethane	96
cis-1,2-Dichloroethene	88
1,1,1-Trichloroethane	102
Trichloroethene	100

#### Container Type: NA - Not Applicable

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	100	70-130	
Toluene-d8	104	70-130	
4-Bromofluorobenzene	94	70-130	



# Client Sample ID: LCS

Lab ID#: 0602635-14A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

The state of the s		All the second of the second o		
File Name:	100,200,000	6030703	The second	Date of Collection: NA
Dil Factor:		.1.00		Date of Analysis: 3/7/06 12:26 PM
Dil. Ractor.		1.00		Date Of Ariatysis. 3///00 12:20 PM 3

Compound	%Recove	
Vinyl Chloride	92	
1,1-Dichloroethene	86	
1,1-Dichloroethane	91	
cis-1,2-Dichloroethene	89	
1,1,1-Trichloroethane	98	
Trichloroethene	93	

#### Container Type: NA - Not Applicable

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	103	70-130	
Toluene-d8	97	70-130	
4-Bromofluorobenzene	101	70-130	

#### **WORK ORDER #: 0602660A**

Work Order Summary

**CLIENT:** 

Ms. Diane Wisbeck

BILL TO:

Mr. Christopher Sharpe

Arcadis G&M, Inc.

Arcadis G&M, Inc. 6 Terry Dr., Suite 300

1114 Benfield Blvd., Suite A

Newtown, PA 18940

Millersville, MD 21108

PHONE:

410-987-0032

P.O. #

FAX:

410-987-4392

PROJECT # NP597.6 AH Bally

DATE RECEIVED:

02/28/2006

CONTACT:

Kelly Buettner

DECEIDT

DATE COMPLETED:

03/13/2006

			RECEILI
FRACTION #	<u>NAME</u>	<u>TEST</u>	VAC./PRES.
02A	BAL-SV-07-022706	Modified TO-15	3.0 "Hg
03A	BAL-SV-04B-022706	Modified TO-15	3.0 "Hg
04A	Lab Blank	Modified TO-15	NA
05A	CCV	Modified TO-15	NA
06A	LCS	Modified TO-15	. NA

**CERTIFIED BY:** 

Linda d. Truman

ΔTE: 03/13/06

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004

NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

# LABORATORY NARRATIVE Modified TO-15 Arcadis Geraghty & Miller Workorder# 0602660A

Two 6 Liter Summa Canister (100% Certified) samples were received on February 28, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
Daily CCV	+- 30% Difference	= 30% Difference with two allowed out up to </=40%.; flag and narrate outliers</td
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

There were no analytical discrepancies.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction no performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV
  - N The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified



b-File was quantified by a second column and detector r1-File was requantified for the purpose of reissue



# Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BAL-SV-07-022706

Lab ID#: 0602660A-02A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	74	26000	300	100000
1,1,1-Trichloroethane	74	9300	410	51000
Trichloroethene	74	9000	400	48000

Client Sample ID: BAL-SV-04B-022706

Lab ID#: 0602660A-03A

Compound	Rpt. Limit	Amount	Rpt. Limit (uG/m3)	Amount (uG/m3)
Compound	(ppbv)	(ppbv)	(uG/III3)	(uG/ms)
Trichloroethene	150	39000	800	210000

#### Client Sample ID: BAL-SV-07-022706

Lab ID#: 0602660A-02A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil. Factor:	i030921 149	· · · · · · · · · · · · · · · · · · ·	Date of Collection: Date of Analysis:	<ul><li>いて、ここになって変数が多く数で変があって、こと。</li></ul>
Compound	Rɒt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	74	Not Detected	190	Not Detected
1,1-Dichloroethene	74	26000	300	100000:
1,1-Dichloroethane	74	Not Detected	300	Not Detected
cis-1,2-Dichloroethene	74	Not Detected	300	Not Detected

9300

9000

410

400

74

74

Container Type: 6 Liter Summa Canister (100% Certified)

1,1,1-Trichloroethane

Trichloroethene

		Method	
Surrogates	%Recovery	Limits	
Toluene-d8	93	70-130	
1,2-Dichloroethane-d4	101	70-130	
4-Bromofluorobenzene	94	70-130	

51000

48000

#### Client Sample ID: BAL-SV-04B-022706

Lab ID#: 0602660A-03A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

which we define the second second		14 14 14 14 14 18 18 18 18 18 18 18 18 18 18 18 18 18	
FILENIA	1000000		5 O - II41 0 107 106
File Name:	i030922***	Date C	of Collection: 2/27/06
Dil. Factor:	298	Date o	of Analysis: 3/10/06 10:05 AM
16 16 (See 863 174 ) C (171 )	Salar Sa	7 7 7 7 7 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2	E. N. K. San W. C. C. T.

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	150	Not Detected	380	Not Detected
1,1-Dichloroethene	150	Not Detected	590	Not Detected
1,1-Dichloroethane	150	Not Detected	600	Not Detected
cis-1,2-Dichloroethene	150	Not Detected	590	Not Detected
1,1,1-Trichloroethane	150	Not Detected	810	Not Detected
Trichloroethene	150	39000	800	210000

		metnoa	
Surrogates_	%Recovery	Limits	
Toluene-d8	102	70-130	
1,2-Dichloroethane-d4	99	70-130	
4-Bromofluorobenzene	95	70-130	

Client Sample ID: Lab Blank Lab ID#: 0602660A-04A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Dil. Factor: 1.00		2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	Date of Analysis: 3/9/06.07:27 PM	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected

Not Detected

Not Detected

2.7

2.7

Not Detected

Not Detected

0.50

0.50

#### Container Type: NA - Not Applicable

1,1,1-Trichloroethane

Trichloroethene

•		Method	
Surrogates	%Recovery	Limits	
Toluene-d8	101	70-130	
1,2-Dichloroethane-d4	103	70-130	
4-Bromofluorobenzene	103	70-130	



#### Client Sample ID: CCV Lab ID#: 0602660A-05A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	i030909 Date of Collection: N	
Dil. Factor:	1.00 Date of Analysis: 3/9	0/06 02:04 PM

Compound	'%Recovery
Vinyl Chloride	72
1,1-Dichloroethene	87
1,1-Dichloroethane	87
cis-1,2-Dichloroethene	88
1,1,1-Trichloroethane	89
Trichloroethene	83

		Method	
Surrogates	%Recovery	Limits	
Toluene-d8	104	70-130	
1,2-Dichloroethane-d4	100	70-130	
4-Bromofluorobenzene	105	70-130	

Client Sample ID: LCS

Lab ID#: 0602660A-06A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

- Long ( 100 m) ( 1	. 사용 (소용) 사용 등 보는 사용 호텔 등 전환 전 항상품 전 : 소급 <b>경</b> 험에는 상품하면 하면 보고 있다. 다른 경험 등 보고 있다. 전 : 한 경험 등 전 기업
	경기를 받는 것 같아. 이번 100 전
File Name:	i030912 Date of Collection: NA
Dil. Factor:	1.00 Date of Analysis: 3/9/06 04:27 PM
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	

Compound	%Recovery
Vinyl Chloride	. 74
1,1-Dichloroethene	89
1,1-Dichloroethane	89
cis-1,2-Dichloroethene	91
1,1,1-Trichloroethane	96
Trichloroethene	86

		wetnoa
Surrogates	%Recovery	Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	104	70-130

WORK ORDER #:

0602660B

Work Order Summary

CLIENT:

Ms. Diane Wisbeck

BILL TO: Mr. Christopher Sharpe

Arcadis G&M, Inc.

Arcadis G&M, Inc.

1114 Benfield Blvd., Suite A

6 Terry Dr., Suite 300

Millersville, MD 21108

Newtown, PA 18940

PHONE:

410-987-0032

P.O. #

FAX:

410-987-4392

PROJECT #

NP597.6 AH Bally

DATE RECEIVED:

02/28/2006

CONTACT:

Kelly Buettner

DATE COMPLETED:

03/12/2006

		RECEIPT
<u>NAME</u>	<u>TEST</u>	VAC./PRES.
BAL-SV-06-022706	Modified TO-15	1.5 "Hg
Lab Blank	Modified TO-15	· . NA
CCV	Modified TO-15	NA
LCS	Modified TO-15	NA
	BAL-SV-06-022706 Lab Blank CCV	BAL-SV-06-022706 Modified TO-15 Lab Blank Modified TO-15 CCV Modified TO-15

CERTIFIED BY:

03/13/06 DATE:

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004 NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

#### LABORATORY NARRATIVE Modified TO-15 Low Level Arcadis Geraghty & Miller Workorder# 0602660B

One 6 Liter Summa Canister (100% Certified) sample was received on February 28, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
ICAL %RSD acceptance criteria	+- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers</td
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

There were no analytical discrepancies.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV



N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



# Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BAL-SV-06-022706

Lab ID#: 0602660B-01A

No Detections Were Found.

Client Sample ID: BAL-SV-06-022706

Lab ID#: 0602660B-01A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil Factor:	7030711 1.41		Date of Collection: Date of Analysis:	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.14	Not Detected	0.36	Not Detected
1,1-Dichloroethene	0.14	Not Detected	0.56	Not Detected
1,1-Dichloroethane	0.14	Not Detected	0.57	Not Detected
cis-1,2-Dichloroethene	0.14	Not Detected	0.56	Not Detected
1,1,1-Trichloroethane	0.14	Not Detected	0.77	Not Detected
Trichloroethene	0.14	Not Detected	0.76	Not Detected

	0/5	Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: Lab Blank

Lab ID#: 0602660B-02A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: 7030705  Dil. Factor: 1.00			Date of Collection:  Date of Analysis: 3	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130



#### Client Sample ID: CCV Lab ID#: 0602660B-03A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

The second of th		22-030-04-2	こうだちょう 一、一様なり選択の方式	STO & 186 90 0
File Name:	7030702		Date of Collection: NA	488 S HOTE
Dil. Factor:	4.00		Date of Analysis: 3/7/6	06 40 20 AM
Dir. I actor.		No. 1 Section	Date Of Allaivais. 3/1/	J0:10.20 AW

Compound	%Recovery
Vinyl Chloride	104
1,1-Dichloroethene	100
1,1-Dichloroethane	104
cis-1,2-Dichloroethene	103
1,1,1-Trichloroethane	103
Trichloroethene	104

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	104	70-130

Client Sample ID: LCS

#### Lab ID#: 0602660B-04A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7030703	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 3/7/06:11:34 AM

Compound	%Recovery
Vinyl Chloride	106
1,1-Dichloroethene	100
1,1-Dichloroethane	105
cis-1,2-Dichloroethene	104
1,1,1-Trichloroethane	107
Trichloroethene	107

•		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	103	70-130

**WORK ORDER #: 0603026** 

Work Order Summary

CLIENT:

Ms. Diane Wisbeck

Arcadis G&M, Inc.

BILL TO:

Mr. Christopher Sharpe

1114 Benfield Blvd., Suite A Millersville, MD 21108 Arcadis G&M, Inc. 6 Terry Dr., Suite 300 Newtown, PA 18940

PHONE:

410-987-0032

P.O. #

FAX:

410-987-4392

PROJECT#

NP597.6 AH Bally

DATE RECEIVED: DATE COMPLETED:

03/01/2006 03/14/2006

CONTACT:

Kelly Buettner

			RECEIPT
FRACTION#	<u>NAME</u>	<u>TEST</u>	VAC./PRES.
01A	BAL-SV-08-022806	Modified TO-15	2.5 "Hg
02A	BAL-SV-05-022806	Modified TO-15	4.5 "Hg
03A	BAL-SV-50-022806	Modified TO-15	3.5 "Hg
04A	BAL-SV-010-022806	Modified TO-15	4.0 "Hg
05A	BAL-SV-03B-022806	Modified TO-15	2.0 "Hg
06A	Lab Blank	Modified TO-15	NA
07A	CCV	Modified TO-15	NA
08A	LCS	Modified TO-15	NA

CERTIFIED BY:

Sinda d. Truman

TE: 03/14/06

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP - AI 30763, NJ NELAP - CA004

NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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# Modified TO-15 Arcadis Geraghty & Miller Workorder# 0603026

Five 6 Liter Summa Canister (100% Certified) samples were received on March 01, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
ICAL %RSD acceptance criteria	+- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers</td
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

There were no analytical discrepancies.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV



N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



## **Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: BAL-SV-08-022806

Lab ID#: 0603026-01A

	Rpt. Limit	Amount	Rpt. Limit	Amount	
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)	
Trichloroethene	0.15	1.7	0.78	9.1	

Client Sample ID: BAL-SV-05-022806

Lab ID#: 0603026-02A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	1.6	140	6.3	580
1,1,1-Trichloroethane	1.6	4.0	8.6	22
Trichloroethene	1.6	490	8.5	2600

Client Sample ID: BAL-SV-50-022806

Lab ID#: 0603026-03A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	1.5	150	6.0	590
1,1,1-Trichloroethane	1.5	4.2	8.3	23
Trichloroethene	1.5	490	8.2	2600

Client Sample ID: BAL-SV-010-022806

Lab ID#: 0603026-04A

Rbt. Limit (ppbv)	(ppbv)	(uG/m3)	Amount (uG/m3)
1.0	2.2	4.2	9.0
1.0	190	4.1	740
1.0	68	5.6	370
1.0	92	5.5	490
	(ppbv) 1.0 1.0 1.0	(ppbv)         (ppbv)           1.0         2.2           1.0         190           1.0         68	(ppbv)         (ppbv)         (uG/m3)           1.0         2.2         4.2           1.0         190         4.1           1.0         68         5.6

Client Sample ID: BAL-SV-03B-022806

Lab ID#: 0603026-05A

	Rpt. Limit	Amount	Rpt. Limit	Amount	
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)	
Trichloroethene	2.4	790	13	4200	

Client Sample ID: BAL-SV-08-022806

Lab ID#: 0603026-01A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil. Factor:	7031205 ** 1.46 **	- 20、20 Year - 20 - 3 (1) - 28 - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (1) - 28 (	Date of Collection: 2 Date of Analysis: 3/1	1.2 The 2014 Control of th
		_		

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.15	Not Detected	0.37	Not Detected
1,1-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,1-Dichloroethane	0.15	Not Detected	0.59	Not Detected
cis-1,2-Dichloroethene	0.15	Not Detected	0.58	Not Detected
1,1,1-Trichloroethane	0.15	Not Detected	0.80	Not Detected
Trichloroethene	0.15	1.7	0.78	9.1

		metnoa
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: BAL-SV-05-022806

Lab ID#: 0603026-02A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil. Factor:	7031207 15.8	the state of the s	Date of Collection: 2/28/06 Date of Analysis: 3/13/06 03:43 AM		
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)	
Vinyl Chloride	1.6	Not Detected	4.0	Not Detected	
1,1-Dichloroethene	1.6	140	6.3	580	
1,1-Dichloroethane	1.6	Not Detected	6.4	Not Detected	
cis-1,2-Dichloroethene	1.6	Not Detected	6.3	Not Detected	
1,1,1-Trichloroethane	1.6	4.0	8.6	22	
Trichloroethene	1.6	490	8.5	2600	

	·	Method Limits	
Surrogates	%Recovery		
1,2-Dichloroethane-d4	114	70-130	
Toluene-d8	100	70-130	
4-Bromofluorobenzene	102	70-130	

Client Sample ID: BAL-SV-50-022806

Lab ID#: 0603026-03A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7031208	202000000000000000000000000000000000000	Collection: 2/28/06
Dil. Factor:	15.2	Date of	Analysis: 3/13/06 04:26 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	1.5	Not Detected	3.9	Not Detected
1,1-Dichloroethene	1.5	150	6.0	590
1,1-Dichloroethane	1.5	Not Detected	6.2	Not Detected
cis-1,2-Dichloroethene	1.5	Not Detected	6.0	Not Detected
1,1,1-Trichloroethane	1.5	4.2	8.3	23
Trichloroethene	1.5	490	8.2	2600

Surrogates	%Recovery	Method Limits	
1,2-Dichloroethane-d4	117	70-130	_
Toluene-d8	100	70-130	
4-Bromofluorobenzene	104	70-130	

Client Sample ID: BAL-SV-010-022806

Lab ID#: 0603026-04A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Dil. Factor:	7031209		Date of Analysis: «3	2/28/06 3/13/06 05:10 AM
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	1.0	Not Detected	2.6	Not Detected
1,1-Dichloroethene	1.0	Not Detected	4.1	Not Detected
4.4 Diablamathana	1.0	2.2	4.0	0.0

1,1-Dichloroethane 1.0 2.2 4.2 9.0 cis-1,2-Dichloroethene 1.0 190 4.1 740 1.0 68 5.6 370 1,1,1-Trichloroethane Trichloroethene 1.0 92 5.5 490

		Metriod
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	115	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130

#### Client Sample ID: BAL-SV-03B-022806

Lab ID#: 0603026-05A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil Factor:	7031210 24.0		Date of Collection: Date of Analysis: 3	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	2.4	Not Detected	6.1	Not Detected
1,1-Dichloroethene	2.4	Not Detected	9.5	Not Detected
1,1-Dichloroethane	2.4	Not Detected	9.7	Not Detected
cis-1,2-Dichloroethene	2.4	Not Detected	9.5	Not Detected
1,1,1-Trichloroethane	2.4	Not Detected	13	Not Detected

#### Container Type: 6 Liter Summa Canister (100% Certified)

Trichloroethene

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	120	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	. 100	70-130

790

4200

#### Client Sample ID: Lab Blank Lab ID#: 0603026-06A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: 7031204a Dil. Factor: 1:00		Date of Collection: Date of Analysis: 3		
Compound	Rpt. Limit (ppbv)	'Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	102	70-130`

### Client Sample ID: CCV

Lab ID#: 0603026-07A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

	2 3 4 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5		
File Name:	7031202	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	3/12/06 11 23 PM
THE RESIDENCE OF THE PARTY OF T	with the state of	Daic of Angitysis.	OF TETOO THE PROPERTY

Compound	%Recovery
Vinyl Chloride	106
1,1-Dichloroethene	105
1,1-Dichloroethane	108
cis-1,2-Dichloroethene	106
1,1,1-Trichloroethane	118
Trichloroethene	106

		metnoa
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	115	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	103	70-130

Client Sample ID: LCS Lab ID#: 0603026-08A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

	YON TO GREET TO		W. Market	Sea Server	Some time of the contract of t	
File Name:		7031203	628 / 3 / 7848	A Sugar Section	Date of Collection	n: NA
Dil. Factor:		1.00		identa primi	Date of Analysis	: 3/13/06 12:03 AM

Compound	%Recovery
Vinyl Chloride	104
1,1-Dichloroethene	103
1,1-Dichloroethane	108
cis-1,2-Dichloroethene	104
1,1,1-Trichloroethane	119
Trichloroethene	109

		Wethod
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	101	70-130

WORK ORDER #: 0603058A

Work Order Summary

CLIENT:

Ms. Diane Wisbeck

Arcadis G&M, Inc.

1114 Benfield Blvd., Suite A

Millersville, MD 21108

BILL TO:

Mr. Christopher Sharpe

Arcadis G&M, Inc.

6 Terry Dr., Suite 300 Newtown, PA 18940

PHONE:

410-987-0032

P.O. #

FAX:

410-987-4392

PROJECT#

NP597.6 AH Bally

DATE RECEIVED: DATE COMPLETED: 03/02/2006 03/15/2006

**CONTACT:** 

Kelly Buettner

FRACTION #	<u>NAME</u>
02A	BAL-SV-09-030106
03A	Lab Blank
04A	CCV
05A	LCS

	RECEIPT
<u>TEST</u>	VAC./PRES.
Modified TO-15	1.0 "Hg
Modified TO-15	NA
Modified TO-15	NA
Modified TO-15	NA

CERTIFIED BY:

03/15/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004 NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,

Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

# LABORATORY NARRATIVE Modified TO-15 Arcadis Geraghty & Miller Workorder# 0603058A

One 6 Liter Summa Canister (100% Certified) sample was received on March 02, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
ICAL %RSD acceptance criteria	+- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers</p
Blank and standards	Zero air	Nitrogen .
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

There were no analytical discrepancies.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - O Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.



## AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



# **Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: BAL-SV-09-030106

Lab ID#: 0603058A-02A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1,1-Trichloroethane	0.14	0.14	0.76	0.78
Trichloroethene	0.14	2.1	0.75	11

#### Client Sample ID: BAL-SV-09-030106

Lab ID#: 0603058A-02A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

	Pot Limit	Amount	Rot Limit	Amount
Dil. Factor:	1.39		Date of Analysis:	3/13/06 07:11 AM
			· : : : : : : : : : : : : : : : : : : :	(
File Name:	7031211		Date of Collection	: 3/1/06
1 · 全型工作 - 1 · 1 · 1 · 1 · 1 · 1 · 1 · 1 · 1 · 1	Service and Land Could have been a serviced as a service of the se	Electrical Control of the control of	트웨션 (BBS UM TS)	1. 18 18 18 18 18 18 18 18 18 18 18 18 18

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.14	Not Detected	0.36	Not Detected
1,1-Dichloroethene	0.14	Not Detected	0.55	Not Detected
1,1-Dichloroethane	0.14	Not Detected	0.56	Not Detected
cis-1,2-Dichloroethene	0.14	Not Detected	0.55	Not Detected
1,1,1-Trichloroethane	0.14	0.14	0.76	0.78
Trichloroethene	0.14	2.1	0.75	11

Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	119	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	104	70-130

### Client Sample ID: Lab Blank

Lab ID#: 0603058A-03A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name	7031204 1.00	マングン ちゃましんぶ 福祉者 こじずごだら しじ かいき 突然 はやがめをと ニーバー・コード 投行 コンディン はん ニンタコー・フィン・コージー アーバー			
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)	
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected	
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected	
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected	
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected	
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected	
Trichloroethene	0.10	Not Detected	0.54	Not Detected	

		wethod	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	112	70-130	
Toluene-d8	97	70-130	
4-Bromofluorobenzene	102	70-130	



## Client Sample ID: CCV

Lab ID#: 0603058A-04A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

VINE CONTRACTOR OF TAXABLE PROPERTY.	TARREST TO THE CONTRACT OF THE STATE OF THE	- U T 2 7 6 8 6 7 1 2 2 3 4 1 1 2 3 4 1 1 2 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4
1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -		
File Name:	7031202 Dat	e of Collection: NA
THE MAINE.	7031202 Dat	6 OI COHECHOH, NA
Dil. Factor:	1.00 Dat	e of Analysis: 3/12/06 11:23 PM
- Chickery Chickey	- Charles Control of the Control of	e or Ariarysis. 3/12/00 11.23 FW 🖂

Compound	%Recovery
Vinyl Chloride	106
1,1-Dichloroethene	105
1,1-Dichloroethane	108
cis-1,2-Dichloroethene	106
1,1,1-Trichloroethane	118
Trichloroethene	106

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	115	70-130	
Toluene-d8	100	70-130	
4-Bromofluorobenzene	103	70-130	

### Client Sample ID: LCS

#### Lab ID#: 0603058A-05A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

- No. 1980 (ACOMONDO CONTROL OF THE PROPERTY	TO THE CONTROL OF THE PROPERTY
1 A N & S & S & S & S & S & S & S & S & S &	
File Name:	31203 Date of Collection: NA
<u>                                    </u>	
Dil. Factor:	1.00 Date of Analysis: 3/13/06 12:03 AM
The state of the s	

Compound	%Recovery
Vinyl Chloride	104
1,1-Dichloroethene	103
1,1-Dichloroethane	108
cis-1,2-Dichloroethene	104
1,1,1-Trichloroethane	119
Trichloroethene	109

•.		Method Limits	
Surrogates	%Recovery		
1,2-Dichloroethane-d4	113	70-130	
Toluene-d8	102	70-130	
4-Bromofluorobenzene	101	70-130	

**WORK ORDER #: 06** 

0603058B

Work Order Summary

**CLIENT:** 

Ms. Diane Wisbeck

Arcadis G&M, Inc.

1114 Benfield Blvd., Suite A

Millersville, MD 21108

BILL TO: M

Mr. Christopher Sharpe

Arcadis G&M, Inc.

6 Terry Dr., Suite 300 Newtown, PA 18940

PHONE:

410-987-0032

P.O. #

FAX:

410-987-4392

PROJECT #

NP597.6 AH Bally

DATE RECEIVED:

03/02/2006

CONTACT:

Kelly Buettner

**DATE COMPLETED:** 

03/15/2006

	•	•	RECEIPT
FRACTION #	<u>NAME</u>	<u>TEST</u>	VAC./PRES.
01A	BAL-SV-11-030106	Modified TO-15	2.5 "Hg
02A	Lab Blank	Modified TO-15	NA
03A	CCV	Modified TO-15	NA
04A	LCS	Modified TO-15	NA

**CERTIFIED BY:** 

Sinda d. Fruman

ATE 03/15/06

Laboratory Director

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004

NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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# LABORATORY NARRATIVE Modified TO-15 Arcadis Geraghty & Miller Workorder# 0603058B

One 6 Liter Summa Canister (100% Certified) sample was received on March 02, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
Daily CCV	+- 30% Difference	= 30% Difference with two allowed out up to </=40%.;<br flag and narrate outliers
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

There were no analytical discrepancies.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction no performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV
  - N The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:



a-File was requantified b-File was quantified by a second column and detector r1-File was requantified for the purpose of reissue



### Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: BAL-SV-11-030106

Lab ID#: 0603058B-01A

	Rot. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	73	9500	290	38000
1,1,1-Trichloroethane	73	5000	400	27000
Trichloroethene	73	20000	390	110000

#### Client Sample ID: BAL-SV-11-030106

Lab ID#: 0603058B-01A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	i031426	Date of Collectio	n: 3/1/06
Dil. Factor:	146	Control of the second of the control	: 3/15/06,12:07 PM

Compound	Rot. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	73	Not Detected	190	Not Detected
1,1-Dichloroethene	73	9500	290	38000
1,1-Dichloroethane	73	Not Detected	300	Not Detected
cis-1,2-Dichloroethene	73	Not Detected	290	Not Detected
1,1,1-Trichloroethane	73	5000	400	27000
Trichloroethene	73	20000	390	110000

		metnoa
Surrogates	%Recovery	Limits
Toluene-d8	98	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	109	70-130

Client Sample ID: Lab Blank Lab ID#: 0603058B-02A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

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- 1	<ul> <li>I is a construction of the constr</li></ul>	and and the district the second		スケース はない きんきゅう アスプリー たいごうしょうさい しょうしょ コート・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・・
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1	1	12" W 1 2" W 1 C S. 1	** *	The state of the s
	I File Name:	i031409	, ,	Data at Callaction, N.A. W. C.
	I FIIG Hallio	1031403/		Date of Collection: NA
	1	A section of the sect		
	■ ■ ■ *** ** ** ** ** ** ** ** ** ** **		. v . v	
	Dil. Factor:			
	Dil. Factor:	~ ~ E.UU.		Date of Analysis: 3/14/06 05:28 PM
	1 =			,
	1. 7.2. (4.5.1.2.1.2.1.2.1.2.1.2.1.2.1.2.1.2.1.2.1			

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected

		Method	
Surrogates	%Recovery	Limits	
Toluene-d8	99	70-130	
1,2-Dichloroethane-d4	99	70-130	
4-Bromofluorobenzene	106	70-130	



#### Client Sample ID: CCV Lab ID#: 0603058B-03A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	i031406	Date of Collection: NA
Dil, Factor:	1 00	Date of Analysis: 3/14/06 02:58 PM
Dil. Factor.	1.00	Mare of Alialysis, 3/14/00/02:30 Fig.

Compound	%Recovery
Vinyl Chloride	73
1,1-Dichloroethene	86
1,1-Dichloroethane	86
cis-1,2-Dichloroethene	87
1,1,1-Trichloroethane	88
Trichloroethene	81

		metnoa	
Surrogates	%Recovery	Limits	
Toluene-d8	101	70-130	
1,2-Dichloroethane-d4	100	70-130	
4-Bromofluorobenzene	107	70-130	

Client Sample ID: LCS Lab ID#: 0603058B-04A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	31407 Date of Collection: NA
Dil: Factor:	1.00 Date of Analysis: 3/14/06 03:44 PM

Compound	%Recovery
Vinyl Chloride	81
1,1-Dichloroethene	101
1,1-Dichloroethane	101
cis-1,2-Dichloroethene	102
1,1,1-Trichloroethane	102
Trichloroethene	99

	Metriod	
%Recovery	Limits	
103	70-130	
100	70-130	
106	70-130	
	103 100	



**WORK ORDER #:** 

0610306

BILL TO:

P.O. #

PROJECT#

CONTACT:

Work Order Summary

CLIENT:

Ms. Diane Wisbeck

Arcadis G&M, Inc.

1114 Benfield Blvd., Suite A

Millersville, MD 21108

PHONE:

FAX:

410-987-0032

410-987-4392

DATE RECEIVED: DATE COMPLETED: 10/16/2006

RECEIPT

Mr. Christopher Sharpe

Arcadis G&M, Inc.

6 Terry Dr., Suite 300

Newtown, PA 18940

NP000597.0006.00004 AH Bally

NP000597.0006

Kelly Buettner

			ILLCLII I
FRACTION #	<u>NAME</u>	<u>TEST</u>	VAC./PRES.
01A	IA-A-1-101206	Modified TO-15	5.0 "Hg
02A	IA-A-3-101206	Modified TO-15	2.5 "Hg
03A	Lab Blank	Modified TO-15	NA
04A	CCV	Modified TO-15	NA
05A	LCS	Modified TO-15	NA

CERTIFIED BY:

Sinda d. Fruman

10/24/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004

NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/06, Expiration date: 06/30/07

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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# LABORATORY NARRATIVE Modified TO-15 Arcadis Geraghty & Miller Workorder# 0610306

Two 6 Liter Summa Canister (100% Certified) samples were received on October 16, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
ICAL %RSD acceptance criteria	+- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers</td
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

#### **Receiving Notes**

The Chain of Custody (COC) information for sample IA-A-1-101206 and IA-A-3-101206 did not match the information on the canisters with regard to canister identification. The client was notified of the discrepancy and the information on the canisters was used to process and report the samples.

#### **Analytical Notes**

There were no analytical discrepancies.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.



- Q Exceeds quality control limits.
- U Compound analyzed for but not detected above the reporting limit.
- UJ- Non-detected compound associated with low bias in the CCV
- N The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- r1-File was requantified for the purpose of reissue



### **Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: IA-A-1-101206

Lab ID#: 0610306-01A

	Røt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.16	11	0.64	43
1,1,1-Trichloroethane	0.16	8.2	0.88	44
Trichloroethene	0.16	53	0.86	280

Client Sample ID: IA-A-3-101206

Lab ID#: 0610306-02A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.29	38	1.2	150
1,1,1-Trichloroethane	0.29	31	1.6	170
Trichloroethene	0.29	91	1.6	490



#### Client Sample ID: IA-A-1-101206

Lab ID#: 0610306-01A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	a102306		Date of Collection:	10/12/06
Dill:Factor:	4. 1.61		Date of Analysis: »	10/23/06 06:35 PM
Compound	Rpt. Limit	Amount	Rpt. Limit	Amount
	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,1-Dichloroethene	0.16	11	0.64	43

0.16 Not Detected 0.65 Not Detected 1,1-Dichloroethane cis-1,2-Dichloroethene 0.16 Not Detected 0.64 Not Detected 0.16 8.2 0.88 44 1,1,1-Trichloroethane Trichloroethene 0.16 53 0.86 280

		Method Limits	
Surrogates	%Recovery		
1,2-Dichloroethane-d4	94	70-130	
Toluene-d8	100	70-130	
4-Bromofluorobenzene	110	70-130	



#### Client Sample ID: IA-A-3-101206

Lab ID#: 0610306-02A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil. Factor:	a102309		Date of Collection: Date of Analysis:	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.29	Not Detected	0.75	Not Detected
1,1-Dichloroethene	0.29	38	1.2	150
1,1-Dichloroethane	0.29	Not Detected	1.2	Not Detected
cis-1,2-Dichloroethene	0.29	Not Detected	1.2	Not Detected
1,1,1-Trichloroethane	0.29	31	1.6	170
Trichloroethene	0.29	91	1.6	490

		Method Limits	
Surrogates	%Recovery		
1,2-Dichloroethane-d4	93	70-130	
Toluene-d8	100	70-130	
4-Bromofluorobenzene	110	70-130	



#### Client Sample ID: Lab Blank

Lab ID#: 0610306-03A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	1.00	1,12,50% (Sec.) (2011) (2011)	Date of Analysis:	NA 10/23/06 05:41 PM
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected

		Method Limits	
Surrogates	%Recovery		
1,2-Dichloroethane-d4	92	70-130	
Toluene-d8	99	70-130	
4-Bromofluorobenzene	100	70-130	



#### Client Sample ID: CCV Lab ID#: 0610306-04A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

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Dil. Factor:	<b>4100</b>	Claud		sis: 10/23/06 02:55 PM
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Compound	%Recovery
Vinyl Chloride	108
1,1-Dichloroethene	105
1,1-Dichloroethane	100
cis-1,2-Dichloroethene	104
1,1,1-Trichloroethane	97
Trichloroethene	108

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	95	70-130	
Toluene-d8	103	70-130	
4-Bromofluorobenzene	102	70-130	



#### Client Sample ID: LCS Lab ID#: 0610306-05A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: a102304 Date of Collection: N	Tanan Salara	Gial/Williams
THE TOTAL CONTROL OF CONCORDING TO	A maisteidhean —	- 70 W P
Dil. Factor: Date of Analysis: 10	/23/06 04	49 PM

Compound	%Recovery
Vinyl Chloride	96
1,1-Dichloroethene	91
1,1-Dichloroethane	97
cis-1,2-Dichloroethene	101
1,1,1-Trichloroethane	89
Trichloroethene	104

		Method Limits	
Surrogates	%Recovery		
1,2-Dichloroethane-d4	87	70-130	
Toluene-d8	102	70-130	
4-Bromofluorobenzene	110	70-130	

**WORK ORDER #: 0609029A** 

Work Order Summary

**CLIENT:** 

Ms. Diane Wisbeck

BILL TO:

Mr. Christopher Sharpe

Arcadis G&M, Inc.

Arcadis G&M, Inc.

1114 Benfield Blvd., Suite A

6 Terry Dr., Suite 300

Millersville, MD 21108

Newtown, PA 18940

PHONE:

410-987-0032

P.O. #

FAX:

410-987-4392

PROJECT #

NP597.6 AH Bally Bally

DECEIDT

DATE RECEIVED:

09/01/2006

**CONTACT:** 

Kelly Buettner

DATE COMPLETED:

08/21/2006

			RECEIPT
FRACTION #	<u>NAME</u>	<u>TEST</u>	VAC./PRES.
01A	AA-West	Modified TO-15 SIM	5.0 "Hg
02A	AA-East	Modified TO-15 SIM	5.5 "Hg
03A	IA-A-1	Modified TO-15 SIM	4.0 "Hg
04A	IA-A-2	Modified TO-15 SIM	4.5 "Hg
05A	IA-A-4	Modified TO-15 SIM	4.5 "Hg
06A	IA-A-6	Modified TO-15 SIM	5.0 "Hg
07A	IA-A-5	Modified TO-15 SIM	3.0 "Hg
07AA	IA-A-5 Duplicate	Modified TO-15 SIM	3.0 "Hg
14A(cancelled)	IA-A-1 (dup)	Modified TO-15 SIM	0.0 "Hg
15A	Lab Blank	Modified TO-15 SIM	NA
16A	CCV	Modified TO-15 SIM	NA
17A	LCS	Modified TO-15 SIM	NA

CERTIFIED BY:

Scrida d. Fruman

DATE:  $\frac{09/15/06}{}$ 

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004

NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/06, Expiration date: 06/30/07

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

#### LABORATORY NARRATIVE Modified TO-15 SIM Arcadis Geraghty & Miller Workorder# 0609029A

Eight 6 Liter Summa Canister (SIM Certified) samples were received on September 01, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode. The method involves concentrating up to 0.5 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
ICAL %RSD acceptance criteria	=30% RSD with 2<br compounds allowed out to < 40% RSD	Project specific; default criteria is =30% RSD with 10% of compounds allowed out to < 40% RSD</td
Daily Calibration	+- 30% Difference	Project specific; default criteria is = 30% Difference with 10% of compounds allowed out up to </=40%.; flag and narrate outliers</td
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

#### **Receiving Notes**

Sample IA-A-1 (dup) arrived at ambient pressure yet a flow controller was used for sample collection. The client was notified and the analysis was cancelled.

#### **Analytical Notes**

There were no analytical discrepancies.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV
  - N The identification is based on presumptive evidence.

# AIR TOXICS LTD. AN ENVIRONMENTAL ANALYTICAL LABORATORY

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



## **Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM**

Lab ID#: 0609029A-01A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.016	0.019	0.064	0.075
1,1,1-Trichloroethane	0.032	0.050	0.18	0.27
Trichloroethene	0.032	0.036	0.17	0.19

#### Client Sample ID: AA-East

Lab ID#: 0609029A-02A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.016	0.029	0.065	0.12
1,1,1-Trichloroethane	0.033	0.061	0.18	0.33
Trichlöroethene	0.033	0.051	0.18	0.27

#### Client Sample ID: IA-A-1

Lab ID#: 0609029A-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Kpt. Limit (uG/m3)	Amount (uG/m3)
1.1-Dichloroethene	0.022	16	0.088	62
cis-1,2-Dichloroethene	0.044	0.045	0.18	0.18
1,1,1-Trichloroethane	0.044	19	0.24	100
Trichloroethene	0.044	33	0.24	180

#### Client Sample ID: IA-A-2

Lab ID#: 0609029A-04A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.016	0.32	0.063	1.3
1,1,1-Trichloroethane	0.032	0.28	0.17	1.6
Trichloroethene	0.032	0.71	0.17	3.8

#### Client Sample ID: IA-A-4

Lab ID#: 0609029A-05A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.016	0.018	0.063	0.070



#### Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS SIM

#### Lab ID#: 0609029A-05A

 1,1,1-Trichloroethane
 0.032
 0.056
 0.17
 0.30

 Trichloroethene
 0.032
 0.066
 0.17
 0.35

#### Client Sample ID: IA-A-6

Lab ID#: 0609029A-06A

	Rɒt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.016	0.83	0.064	3.3
1,1,1-Trichloroethane	0.032	0.42	0.18	2.3
Trichloroethene	0.032	0.19	0.17	1.0

#### Client Sample ID: IA-A-5

Lab ID#: 0609029A-07A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.015	4.9	0.059	19
1,1,1-Trichloroethane	0.030	1.8	0.16	9.6
Trichloroethene	0.030	1.4	0.16	7.4

#### Client Sample ID: IA-A-5 Duplicate

Lab ID#: 0609029A-07AA

•	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.015	5.8	0.059	23
1,1,1-Trichloroethane	0.030	1.8	0.16	9.6
Trichloroethene	0.030	1.4	0.16	7.4

Client Sample ID: AA-West Lab ID#: 0609029A-01A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name:	6090714	Date of Collection: 8/28/06
DI F	A 64	0/2/06/06/09 50 50
DII. Factor.	of Kill Sall. 61 en British Assumble Fathers (1997)	Date of Analysis: 9//06 09:53 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.016	Not Detected	0.041	Not Detected
1,1-Dichloroethene	0.016	0.019	0.064	0.075
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.032	0.050	0.18	0.27
Trichloroethene	0.032	0.036	0.17	0.19

		Metriod	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	128	70-130	
Toluene-d8	105	70-130	
4-Bromofluorobenzene	114 .	70-130	

Client Sample ID: AA-East Lab ID#: 0609029A-02A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: 6090715 Date of Collection: 8/28/06 Dil. Factor: 1.64 Date of Analysis: 9/7/06 10:	
-----------------------------------------------------------------------------------------------	--

. ————	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
Vinyl Chloride	0.016	Not Detected	0.042	Not Detected
1,1-Dichloroethene	0.016	0.029	0.065	0.12
1,1-Dichloroethane	0.033	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
1,1,1-Trichloroethane	0.033	0.061	0.18	0.33
Trichloroethene	0.033	0.051	0.18	0.27

		Meniod
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	126	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene.	115	70-130

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Client Sample ID: IA-A-1 Lab ID#: 0609029A-03A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: 6090718 Date of Collection: 8/28/06	Marine Service
Pile Name: O/20/00	terminate .
Dil: Factor: Date of Analysis: 9/8/06 01:	51 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
	0.022	Not Detected	0.056	Not Detected
Vinyl Chloride 1.1-Dichloroethene	0.022	16	0.038	62
1,1-Dichloroethane	0.044	Not Detected	0.18	Not Detected
cis-1,2-Dichloroethene	0.044	0.045	0.18	0.18
1,1,1-Trichloroethane	0.044	19	. 0.24	100
Trichloroethene	0.044	33	0.24	180

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	119	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	113	70-130

Client Sample ID: IA-A-2 Lab ID#: 0609029A-04A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: Dil Factor:	6090719。 1.58		Date of Collection: 8/28/06  Date of Analysis: 9/8/06 02:39 AM		
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)	
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected	
1,1-Dichloroethene	0.016	0.32	0.063	1.3	
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected	
cis-1,2-Dichloroethene	0.032	Not Detected	0.12	Not Detected	
1,1,1-Trichloroethane	0.032	0.28	0.17	1.6	
Trichloroethene	0.032	0.71	0.17	3.8	

	•	wetnoa
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	108	70-130

Client Sample ID: IA-A-4

Lab ID#: 0609029A-05A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

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File Name: 60	090720 🔧	Same and the same a	Date of	of Collecti	ion: 8/28/06
<ul> <li>1 (3) 1. SEC. SEC. SEC. SEC. SECTION SECTION (SECTION SECTION SEC</li></ul>	8 11 1 W	and the second	n	LE AMOUNT	s: 9/8/06 03:32 AM
DII. Factor.	🦥 1.58 🗥		Date o	or Anaiysi	S. 9/0/00/03:32 ANI
		/			

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.016	Not Detected	0.040	Not Detected
1,1-Dichloroethene	0.016	0.018	0.063	0.070
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.12	Not Detected
1,1,1-Trichloroethane	0.032	0.056	0.17	0.30
Trichloroethene	0.032	0.066	0.17	0.35

	ivietrioa	
%Recovery	Limits	
124	70-130	
100	70-130	
. 108	70-130	
	124 100	

Client Sample ID: 1A-A-6

#### Lab ID#: 0609029A-06A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: Dil. Factor:	6090721 1.61	11. 170 Water Staff Or. 1. 170 Sept. 1	Date of Collection: Date of Analysis: 9	\$8 - \$450,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1,000 \$1
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.016	Not Detected	0.041	Not Detected
1,1-Dichloroethene	0.016	0.83	0.064	3.3
1,1-Dichloroethane	0.032	Not Detected	0.13	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.13	Not Detected

0.42

0.19

0.18

0.17

2.3

0.032

0.032

#### Container Type: 6 Liter Summa Canister (SIM Certified)

1,1,1-Trichloroethane
Trichloroethene

	·	Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	119	70-130	
Toluene-d8	103	70-130	
4-Bromofluorobenzene	104	70-130	

Client Sample ID: IA-A-5 Lab ID#: 0609029A-07A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

	1.49	Amount	Date of Analysis: 9  Rot. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
/inyl Chloride	0.015	Not Detected	0.038	Not Detected
,1-Dichloroethene	0.015	4.9	0.059	19
,1-Dichloroethane	0.030	Not Detected	0.12	Not Detected
cis-1,2-Dichloroethene	0.030	Not Detected	0.12	Not Detected
I,1,1-Trichloroethane	0.030	1.8	0.16	9.6
Trichloroethene	0.030	1.4	0.16	7.4

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	122	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	106	70-130

#### Client Sample ID: IA-A-5 Duplicate

Lab ID#: 0609029A-07AA

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: Dil Factor:	6090723 1.49		Date of Collection: Date of Analysis: 9	
Compound	R¤t. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.015	Not Detected	0.038	Not Detected
1,1-Dichloroethene	0.015	5.8	0.059	23
4.4.50 111 10 10 111	0.000	Net Detected:	0.40	Net Detected

Not Detected 0.12 Not Detected 1,1-Dichloroethane 0.030 0.030 Not Detected 0.12 Not Detected cis-1,2-Dichloroethene 1,1,1-Trichloroethane 0.030 1.8 0.16 9.6 Trichloroethene 1.4 7.4 0.030 0.16

<b>7.</b>	•	Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	126	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	112	70-130

Client Sample ID: Lab Blank Lab ID#: 0609029A-15A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name: Dil. Factor:	6090704		Date of Collection: Date of Analysis:	And the fact of the second of
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
1,1-Dichloroethene	0.010	Not Detected	0.040	Not Detected
1,1-Dichloroethane	0.020	Not Detected	0.081	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
1,1,1-Trichloroethane	0.020	Not Detected	0.11	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected

		Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	121	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130

Client Sample ID: CCV Lab ID#: 0609029A-16A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

Children days on the in the month of the day of the	
Lovin B. No. I. et .	
	6090702 Date of Collection: NA
Dil Factor:	1.00 Date of Analysis: 9/7/06 09:34 AM
Commence of the contract of th	Date of Analysis. Strougs. 4 Analysis.

Compound	%Recovery
Vinyl Chloride	85
1,1-Dichloroethene	91
1,1-Dichloroethane	96
cis-1,2-Dichloroethene	90
1,1,1-Trichloroethane	105
Trichloroethene	84

		ivietnoa
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	115	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130

Client Sample ID: LCS Lab ID#: 0609029A-17A

#### MODIFIED EPA METHOD TO-15 GC/MS SIM

<ul> <li>Liusas Losso, Lossos Societados nos Plusões de Production d</li></ul>	98487%
File Name:	6090703 Date of Collection: NA
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Dil. Factor:	1.00 Date of Analysis: 9/7/06.10:12 AM
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Compound	%Recovery
Vinyl Chloride	. 78
1,1-Dichloroethene	89
1,1-Dichloroethane	101
cis-1,2-Dichloroethene	88
1,1,1-Trichloroethane	· 109
Trichloroethene	86

		Metriou
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	117	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	98	70-130

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# **CHAIN-OF-CUSTODY RECORD**

# Sample Transportation Notice

shipping of these samples. Relinquishing signature elso indicates agreement to hold harmless, defend, and indennify Air Toxics Umited against any daim, demand, or action, of any kind, related to the collection, handling, or shipping of semples. D.C.T. Hotine (800) 467-4822. Relinquishing signature on this document indicates that cample is being shipped in complex with all applicable local, State, Federal, reational, and international laws, regulations and ordinan of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling

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# Sample Transportation Notice

CHAIN-OF-CUSTODY RECORD Relinguishing signature on this document indicates that sample is being shipped in compliance with all applicable local. State Federal, national, and international laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the catection, handling or shipping of these samples. Relinguishing signature also intriduces agreement to hold harmless, defined, and indomnity Air Toxics Limited against emplaying demand or action, of any-kind, related to the collection thanking against emplaying of these samples.

(916) 985-1000 FAX (916) 985-1020 180 BLUE RAVINE ROAD, SUITE 8 FOLSOM, CA 95630-4719

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**WORK ORDER #:** 

0609029B

Work Order Summary

**CLIENT:** 

Ms. Diane Wisbeck

Arcadis G&M, Inc.

1114 Benfield Blvd., Suite A

Millersville, MD 21108

**BILL TO:** Mr. Christopher Sharpe

Arcadis G&M, Inc. 6 Terry Dr., Suite 300 Newtown, PA 18940

PHONE:

410-987-0032

P.O. #

FAX:

410-987-4392

PROJECT# NP597.6 AH Bally Bally

DATE RECEIVED:

09/01/2006

**CONTACT:** 

Kelly Buettner

**DATE COMPLETED:** 

09/15/2006

		the second secon	RECEIPT
FRACTION #	<u>NAME</u>	<u>TEST</u>	VAC./PRES.
09A	SS-A-2	Modified TO-15	0.5 "Hg
10A	SS-A-3	Modified TO-15	0.5 "Hg
10AA	SS-A-3 Duplicate	Modified TO-15	0.5 "Hg
11A	SS-A-4	Modified TO-15	1.5 "Hg
13A	SS-A-6	Modified TO-15	1.0 "Hg
14A	Lab Blank	Modified TO-15	. NA
15A	CCV	Modified TO-15	. NA
16A	LCS	Modified TO-15	NA

CERTIFIED BY:

09/15/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004

NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act, Accreditation number: E87680, Effective date: 07/01/06, Expiration date: 06/30/07

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

#### LABORATORY NARRATIVE Modified TO-15 Arcadis Geraghty & Miller Workorder# 0609029B

Four 6 Liter Summa Canister (100% Certified) samples were received on September 01, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
ICAL %RSD acceptance criteria	+- 30% RSD with 2 compounds allowed out to < 40% RSD	30% RSD with 4 compounds allowed out to < 40% RSD
Daily Calibration	+- 30% Difference	= 30% Difference with four allowed out up to </=40%.; flag and narrate outliers</p
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

The recovery of surrogate 1,2-Dichloroethane-d4 in samples SS-A-2 and SS-A-6 was outside control limits due to high level hydrocarbon matrix interference. Data is reported as qualified.

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - Q Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.



UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



# **Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN**

Client Sample ID: SS-A-2

Lab ID#: 0609029B-09A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.27	1.5	1.1	6.0
1,1-Dichloroethane	0.27	0.62	1.1	2.5
cis-1,2-Dichloroethene	0.27	51	1.1	200
1,1,1-Trichloroethane	0.27	19	1.5	. 100
Trichloroethene	0.27	66	1.5	350

Client Sample ID: SS-A-3

Lab ID#: 0609029B-10A

•	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	2.7	61	11	240
1,1,1-Trichloroethane	2.7	3.9	15	21
Trichloroethene	2.7	560	15	3000

Client Sample ID: SS-A-3 Duplicate

Lab ID#: 0609029B-10AA

Rpt. Limit	Amount	Rpt. Limit	Amount
(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
2.7	60	11	240
2.7	3.8	15	21
2.7	570	15	3100
	(ppbv) 2.7 2.7	(ppbv)         (ppbv)           2.7         60           2.7         3.8	(ppbv)         (ppbv)         (uG/m3)           2.7         60         11           2.7         3.8         15

Client Sample ID: SS-A-4

Lab ID#: 0609029B-11A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
Trichloroethene	0.14	0.85	0.76	4.6

Client Sample ID: SS-A-6

Lab ID#: 0609029B-13A

	Rpt. Limit	Amount	Rpt, Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	0.14	0.21	0.55	0.84
1,1,1-Trichloroethane	0.14	0.94	0.76	5.1



# Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

**Client Sample ID: SS-A-6** 

Lab ID#: 0609029B-13A

Trichloroethene

0.14

0.70

0.75

3.8

Client Sample ID: SS-A-2 Lab ID#: 0609029B-09A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.27	Not Detected	0.70	Not Detected
1,1-Dichloroethene	0.27	1.5	1.1	6.0
1,1-Dichloroethane	0.27	0.62	1.1	2.5
cis-1,2-Dichloroethene	0.27	51	1.1	200
1,1,1-Trichloroethane	0.27	19	1.5	100
Trichloroethene	0.27	66	1.5	350

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

,	,	Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	154 Q	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	108	70-130

Client Sample ID: SS-A-3 Lab ID#: 0609029B-10A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

			. 1960. (480. <b>3</b> 17) ( <b>3</b> 17) (317) (437)	
File Name:	7090519	C. C	ate of Collection: 8/30	/06
Dil. Factor:	***** 27.2*	CONTRACTOR D	Date of Analysis: 9/6/06	01:40 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	(ppbv) 2.7	Not Detected	7.0	Not Detected
1,1-Dichloroethene	2.7	61	11,	240
1,1-Dichloroethane	2.7	Not Detected	11	Not Detected
cis-1,2-Dichloroethene	2.7	Not Detected	11	Not Detected
1,1,1-Trichloroethane	2.7	3.9	15	21
Trichloroethene	2.7	560	15	3000

	·	Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

# Client Sample ID: SS-A-3 Duplicate Lab ID#: 0609029B-10AA

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: 7090520 Dil. Factor: 27:2	Date of Collection: 8/30/06 Date of Analysis: 9/6/06 02:24 AM
--------------------------------------	------------------------------------------------------------------

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	2.7	Not Detected	7.0	Not Detected
1,1-Dichloroethene	2.7	60	11	240
1,1-Dichloroethane	2.7	Not Detected	11	Not Detected
cis-1,2-Dichloroethene	2.7	Not Detected	11	Not Detected
1,1,1-Trichloroethane	2.7	3.8	15	. 21
Trichloroethene	2.7	570	15	3100

		Wethod
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	102	70-130

# Client Sample ID: SS-A-4

Lab ID#: 0609029B-11A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	7090521		Date of Collection:	5 F 24 F 1985 FT 177 4 F 2008 2
Dill Factor:	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.14	Not Detected	0.36	Not Detected
1,1-Dichloroethene	0.14	Not Detected	0.56	Not Detected
1,1-Dichloroethane	0.14	Not Detected	0.57	Not Detected
cis-1,2-Dichloroethene	0.14	Not Detected	0.56	Not Detected
1,1,1-Trichloroethane	0.14	Not Detected	0.77	Not Detected
Trichloroethene	0.14	. 0.85	0.76	46

		Mediod	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	125	70-130	
Toluene-d8	100	70-130	
4-Bromofluorobenzene	103	70-130	

Client Sample ID: SS-A-6 Lab ID#: 0609029B-13A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil. Factor:	7090522 1.39	7090522 1.39		Date of Collection: 8/29/06  Date of Analysis: 9/6/06 03:47 AM	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)	
Vinyl Chloride	0.14	Not Detected	0.36	Not Detected	
1,1-Dichloroethene	0.14	0.21	0.55	0.84	
1,1-Dichloroethane	0.14	Not Detected	0.56	Not Detected	
cis-1,2-Dichloroethene	0.14	Not Detected	0.55	Not Detected	
1,1,1-Trichloroethane	0.14	0.94	0.76	5.1	

0.70

0.75

3.8

Q = Exceeds Quality Control limits of 70% to 130%, due to matrix effects.

0.14

Container Type: 6 Liter Summa Canister (100% Certified)

Trichloroethene

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	171 Q	70-130	
Toluene-d8	102	70-130	
4-Bromofluorobenzene	94	70-130	

Client Sample ID: Lab Blank

Lab ID#: 0609029B-14A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Dil. Factor:	1.00	& SECOND - 1 15, 12,000 CONDENSION FOR 1	Date of Analysis: 9/5/06 05:26 PM	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
1,1-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1-Dichloroethane	0.10	Not Detected	0.40	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
1,1,1-Trichloroethane	0.10	Not Detected	0.54	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	105	70-130



Client Sample ID: CCV Lab ID#: 0609029B-15A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: 70	90504 Date of Collection: NA
Dil. Factor:	1.00 Date of Analysis: 9/5/06 10:20 AM

Compound	%Recovery
Vinyl Chloride	. 112
1,1-Dichloroethene	109
1,1-Dichloroethane	` 111
cis-1,2-Dichloroethene	113
1,1,1-Trichloroethane	116
Trichloroethene	104

		Method	
Surrogates	%Recovery	Limits	
1,2-Dichloroethane-d4	106	70-130	
Toluene-d8	102	70-130	
4-Bromofluorobenzene	93	70-130	

Client Sample ID: LCS Lab ID#: 0609029B-16A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

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	and the second s	
File Name:	7090503	Date of Collection: NA
	1030303	Date Of Collection. IVA
Dil. Factor:	1.00	Date of Analysis: 9/5/06 09:40 AM
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Compound		%Recovery
Vinyl Chloride		111
1,1-Dichloroethene	U	107
1,1-Dichloroethane		110
cis-1,2-Dichloroethene	•	104
1,1,1-Trichloroethane		110
Trichloroethene		110

	•	Method
Surrogates	%Recovery	Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	97	70-130

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180 BLUE RAVINE ROAD, SUITE B with all applicable local, State, Federal, national, and International laws, regulations and ordinances of any kind. Air Toxics Limited assumes no liability with respect to the collection, handling or shipping of these samples. Belinquiching stopping of these samples. Belinquiching stopping of these samples. shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnity Air Toxics Limited ageinst any claim, demand, or action, of any kind, related to the collection, handlim, or shipping of seamles, D.O.T. Having (800) 467-4609

Page / of 2

	employing of samples, p.o. 1. Polit	The state of the s		
Contact Person Christopher Sharpe	Project Info:	Tu	ım Around Time:	
Company ARCADIS Email C5harpegara	orus-us. con P.O. #			Fressunzed by \$2
Address La Terry Dr. Sule 300 City New York State PA Zip	18747)			Date: #4 2 100
Phone 267-685-1800 Fax 867-685-1801	Project # NY5	97.6 AttBally 0	<b>i R</b> ush	Pressueration Gas:
Collected by: (Signature) August / Haullines	Project Name	Ballu -	suecify	(n.) He
		<u> </u>	كسيد شيد بندو	er Pressure/Vacuum
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	25 modified	10-13		
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\$190 S-600ma - VT 15	310		-30"	-6.5"
TA-A-4 33823/28/06/20	000		-304	-55
TA - A-\$6 R5 8/26/06 -	20420		-30*	-5° 150
TA-A-\$5 33938 \$128/06 18	330		-30"	-5.°
	252			-1.5" 0"4 5.06
10 SS-A-2 31133 8/30/06 10	28		-30" -	-2" 0.40
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Page 2 of 2

to the	collection, handling	ng, or shipping of	samples, D.O.T. Hottine (80	00) 467-4922.		
Contact Person Christopher Sharpe			Project Info:	į	Turn Around Time:	Lan Joe Only Pressurized by
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	7-685-18		Project # NP59 7	7.6 AHBally	🔲 Rush	Pressuication Gas
		<u> </u>	8			12.5 (c) ( <b>f) (f) (f) (h) (h)</b> (h)
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SS-A-5 4064	8 29 06	1326		-	-30"	-1" 16/4
SS -A-6 1078	8(54) 00	1620			-30"	-7"
IA-A- (dup) 9567	868106	2100			-30"	-5.0
1574 SS-A-1 (dup) 1574	8/30/06	1222	1		7-30*	-10"
			·, ··			
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		mecaon, aggidig	≘ cusubbbiu6 or	Samples, U.O.I. Hot	aine (800) 467~48623.					
Contact Person Christopher Sharp		<del></del>		Project Info:		Turn #	tround ne:			
Company ARCADIS =	mail <u>C</u>	Sharpe@,	arcadis-us.						nese by	
Address la Terry Dr. Suile 30 City New	toon	State PA	Zio [8740"	P.O. #		☐ No	rmat			
Phone 267-685-1800 Fgx	847.	-1887-18	oi	Project # . NY	597.6 AHBally	☐ Ru	sh	Des	nazaron K	
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of any kind. Air Toddes Limited assumes no liability with respect to the collection, handling or
shipping of these samples, Relinquishing signature also indicates agreement to hold harmless. shipping of these samples. Relinquishing signature also indicates agreement to hold harmless, defend, and indemnify Air Toxics I imited against any claim, demand, or action, of any kind, related

Page 2 of 2

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	Contact Person Christopher Sharpe			Project Info:	- ·		Around me:			380	
	Company ALCADIS Email Company Company				P.O. ≠				PRSS	nzeu sy	
	Address GTarry Dr. Surk 300 Cay Mesi	של	State PA	Zp 18740		71	□ No		Date		
			<u> </u>		Project # 10157	7.6 AHBILY	□ R	<b>r</b> sh	Pessi		
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ив	SS-A-5 4	64	R 29 06	1326	1			-30"	-1"	13714	
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	Fed Ex			<u>, -1 3 V 7 N</u>		- Alexiconcia Statistic	<del>2-12-20-11</del>	c-e-non			

WORK ORDER #: 0609029C

Work Order Summary

CLIENT:

PHONE:

Ms. Diane Wisbeck

Arcadis G&M, Inc.

1114 Benfield Blvd., Suite A

Millersville, MD 21108

FAX: 410-987-4392

09/01/2006 DATE RECEIVED: 08/21/2006

DATE COMPLETED:

410-987-0032

P.O. #

NP597.6 AH Bally Bally PROJECT #

Mr. Christopher Sharpe

Arcadis G&M, Inc.

6 Terry Dr., Suite 300

Newtown, PA 18940

CONTACT: Kelly Buettner

BILL TO:

		•	RECEIPT
<b>FRACTION#</b>	<u>NAME</u>	<u>TEST</u>	VAC./PRES.
08A	SS-A-1	Modified TO-15	1.0 "Hg
12A	SS-A-5	Modified TO-15	1.5 "Hg
12AA	SS-A-5 Duplicate	Modified TO-15	1.5 "Hg
15A	SS-A-1 (dup)	Modified TO-15	0.0 "Hg
16A	Lab Blank	Modified TO-15	NA
17 <b>A</b>	CCV	Modified TO-15	NA .
18A	LCS	Modified TO-15	NA

**CERTIFIED BY:** 

09/15/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004 NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,

Accreditation number: E87680, Effective date: 07/01/06, Expiration date: 06/30/07 Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630 (916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

DECEIDT

# LABORATORY NARRATIVE Modified TO-15 Arcadis Geraghty & Miller Workorder# 0609029C

Three 6 Liter Summa Canister (100% Certified) samples were received on September 01, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

Requirement	TO-15	ATL Modifications
Daily CCV	+- 30% Difference	= 30% Difference with two allowed out up to </=40%.; flag and narrate outliers</td
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

#### **Receiving Notes**

There were no receiving discrepancies.

#### **Analytical Notes**

#### **Definition of Data Qualifying Flags**

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

- B Compound present in laboratory blank greater than reporting limit (background subtraction no performed).
  - J Estimated value.
  - E Exceeds instrument calibration range.
  - S Saturated peak.
  - O Exceeds quality control limits.
  - U Compound analyzed for but not detected above the reporting limit.
  - UJ- Non-detected compound associated with low bias in the CCV
  - N The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified



b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue



# Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SS-A-1

Lab ID#: 0609029C-08A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
cis-1,2-Dichloroethene	8.7	12	34	49
1,1,1-Trichloroethane	8.7	13	47	69
Trichloroethene	8.7	2700	47	14000

Client Sample ID: SS-A-5

Lab ID#: 0609029C-12A

•	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	56	20000	220	79000
1,1,1-Trichloroethane	56	9500	310	52000
Trichloroethene	56	8800	300	47000

Client Sample ID: SS-A-5 Duplicate

Lab ID#: 0609029C-12AA

•	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
1,1-Dichloroethene	140	18000	560	72000
1,1,1-Trichloroethane	140	8500	770	46000
Trichloroethene	140	7900	760	42000

Client Sample ID: SS-A-1 (dup)

Lab ID#: 0609029C-15A

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
cis-1,2-Dichloroethene	6.7	7.3	26	29
1,1,1-Trichloroethane	6.7	10	36	- 54
Trichloroethene	6.7	1700	36	9300

Client Sample ID: SS-A-1 Lab ID#: 0609029C-08A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	🐪 f091118	Date of	
Dil. Factor:	17.4	Date of	Analysis: 9/11/06 11:51 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
		·	· , , , , , , , , , , , , , , , , , , ,	
Vinyl Chloride	8.7	Not Detected	22	Not Detected
1,1-Dichloroethene	8.7	Not Detected	34	Not Detected
1,1-Dichloroethane	8.7	Not Detected	35	Not Detected
cis-1,2-Dichloroethene	8.7	12	34	49
1,1,1-Trichloroethane	8.7	13	· 47	69
Trichloroethene	8.7	2700	47	14000

#### Container Type: 6 Liter Summa Canister (100% Certified)

		Method
Surrogates	%Recovery	Limits
Toluene-d8	91	70-130
1,2-Dichloroethane-d4	114	70-130
4-Bromofluorobenzene	97	70-130

Mathad

Client Sample ID: SS-A-5 Lab ID#: 0609029C-12A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

	The state of the s
File Name: f091120	Date of Collection: 8/29/06
Dil. Factor:	Date of Analysis: 9/12/06 01:42 AM

_	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
Vinyl Chloride	56	Not Detected	140	Not Detected
1,1-Dichloroethene	56	20000	220	79000
1,1-Dichloroethane	56	Not Detected	230	Not Detected
cis-1,2-Dichloroethene	56	Not Detected	220	Not Detected
1,1,1-Trichloroethane	56	9500	310	52000
Trichloroethene	56	8800	300	47000

		Metnoa	
Surrogates	%Recovery	Limits	
Toluene-d8	90	70-130	
1,2-Dichloroethane-d4	116	70-130	
4-Bromofluorobenzene	99	70-130	

#### Client Sample ID: SS-A-5 Duplicate

Lab ID#: 0609029C-12AA

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	f091119	** Date of Collection: 8/29/06
Dil. Factor:	282	Date of Analysis: 9/12/06 12:39 AM

	Rpt. Limit	Amount	Rpt. Limit	Amount
Compound	(ppbv)	(ppbv)	(uG/m3)	(uG/m3)
Vinyl Chloride	140	Not Detected	360	Not Detected
1,1-Dichloroethene	· 140	18000	560	72000
1,1-Dichloroethane	140	Not Detected	570	Not Detected
cis-1,2-Dichloroethene	140	Not Detected	560	Not Detected
1,1,1-Trichloroethane	140	8500	770	46000
Trichloroethene	140	7900	760	42000

•		Method
Surrogates	%Recovery	Limits
Toluene-d8	96	70-130
1,2-Dichloroethane-d4	111	70-130
4-Bromofluorobenzene	95	70-130

Client Sample ID: SS-A-1 (dup) Lab ID#: 0609029C-15A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Dil. Factor:	3,13.4	<u> </u>	Date of Analysis: 9/12/06	UZ:29 AIVI
Dil. Factor:			Date of Analysis: 9/12/06	
File Name:	f091121	The second se	Date of Collection: 8/30/00	6
The second of th	- 14 No. 24 Sept. 1888		어느 가면 꽉 뜨겁게 함께는	
A SAME A TONOR AND A SAME AND A S	1 . July 1	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		1 10 SW 12

	Rpt. Limit	Amount	Rpt. Limit	Amount	
Compound	. (ppbv)	(ppbv)	(uG/m3)	(uG/m3)	
Vinyl Chloride	6.7	Not Detected	17	Not Detected	
1,1-Dichloroethene	6.7	Not Detected	26	Not Detected	
1,1-Dichloroethane	6.7	Not Detected	· 27	Not Detected	
cis-1,2-Dichloroethene	6.7	7.3	-26	29	
1,1,1-Trichloroethane	6.7	10	36	. 54	
Trichloroethene	6.7	1,700	36	9300	

·		Method
Surrogates	%Recovery	Limits
Toluene-d8	92	70-130
1,2-Dichloroethane-d4	118	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: Lab Blank Lab ID#: 0609029C-16A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name: Dil. Factor:	f091108 1.00		Date of Collection: NA Date of Analysis: 9/11/06 02:36 PM		
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)	
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected	
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected	
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected	
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected	
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected	
Trichloroethene	0.50	Not Detected	27	Not Detected	

Surrogates	%Recovery	Method Limits
Toluene-d8	91	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	100	70-130

Client Sample ID: LCS Lab ID#: 0609029C-18A

#### MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	f091103 Date of Collection: NA
Dil. Factor:	1.00 Date of Analysis: 9/11/06/11:04/AM

Compound	%Recovery
Vinyl Chloride	76
1,1-Dichloroethene	. 84
1,1-Dichloroethane	85
cis-1,2-Dichloroethene	90
1,1,1-Trichloroethane	97
Trichloroethene	97

•		Method		
Surrogates	%Recovery	Limits		
Toluene-d8	97	70-130		
1,2-Dichloroethane-d4	105	70-130		
4-Bromofluorobenzene	97	70-130		

# **ARCADIS**

Appendix D

Data Validation Reports

# **Data Validation Checklist for 0602635**

Project Name:

Bally ,PA

Project Number:

NP000597.00006.0006

Sample Date(s):

2/28/06

Sample Team:

Philadelphia Field Team

Matrix/Number of Samples: Air/ 11

Air / 10 Duplicates/ 1 Trip Blanks / 0

samples

Trip Blanks / 0 Field Blanks / 0

Air Toxics

Analyzing

180 Blue Ravine Road Suite B

Laboratory:

Folsom, CA 95630 Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15

Laboratory Report

Job Number: 0602635

Dated: 3/9/06

#### 1. ANALYTICAL DATA PACKAGE DOCUMENTATION

#### 1.1 GENERAL INFORMATION

			Pertor	rmance	
	Reported		Acceptable		Not
	No	Yes	No	Yes	Required
1. Sample results		X		Х	
2. Parameters analyzed		X		X	
3. Method of analysis		x		X	
4. Sample collection date		x		X	
5. Laboratory sample received date		X		X	
6. Sample preparation/extraction date					x
7. Sample analysis date		X		X	
Copy of chain-of-custody form signed by lab sample custodian		Х		x	
Narrative summary of QA or sample     problems provided		х		X	

QA - quality assurance

#### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

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Newton, PA 18940

#### 1.2 ORGANIC ANALYSES (VOCs)

	Repo	Performance Reported Acceptable			Not
	No	Yes	No	Yes	Required
1. Holding times	<del></del>	х		х	
2. Blanks					
A. Method blank		x		x	
B. Field blanks					x
C. Trip blanks					x
3. GC/MS Instrument performance check		x		x	
4. Initial calibration RRF's and %RSD's		X		X	
5. Continuing calibration RRF's and %D's		x		X	
6. Matrix spike (MS) %R					x
7. Matrix spike duplicate (MSD) %R					x
8. MS/MSD precision (RPD)					x
9. Laboratory control sample (LCS) %R & RPD		x		X	
10. Laboratory duplicate precision					x
11. Surrogate spike recoveries		X		X	
12. Internal standard retention times and areas		x		X	
13. Compound identification and quantitation		x		X	
14. Field duplicate comparison		X		X	
VOCs - volatile organic compounds %D - percent differ %R - percent recovery %RSD - percent rel		eviation	RRF RPD - relative pe	- relative resp rcent differen	

#### Comments:

14. Sample BAL-IAQ-03B-022406 was replicated in the field and labeled BAL-IAQ-3B-DUP-022406. The replicated data was acceptable.

# 2. SUMMARY AND DATA QUALIFIER CODES

#### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)	
VOC				
None				

Drane Orone

VALIDATION PERFORMED BY:

VALIDATION REVIEWED BY SIGNATURE:

Pages 3/18

# **Data Validation Checklist for 0602660A**

Project Name:

Bally,PA

Project Number:

NP000597.00006.0006

Sample Date(s):

2/28/06

Sample Team:

Philadelphia Field Team

Matrix/Number of

Air/2

Samples: Air/2 samples

Duplicates/0 Trip Blanks / 0

Field Blanks/0

Air Toxics

Analyzing

180 Blue Ravine Road Suite B

Laboratory:

Folsom, CA 95630 Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15

Laboratory Report

Job Number: 0602660A

Dated: 3/17/06

#### 1. ANALYTICAL DATA PACKAGE DOCUMENTATION

#### 1.1 GENERAL INFORMATION

	Reported		Performance Acceptable		Not
	No	Yes	No	Yes	Required
1. Sample results		х		х	
2. Parameters analyzed		X		x	
3. Method of analysis		X		X	
4. Sample collection date		X		X	
5. Laboratory sample received date		X		x	
6. Sample preparation/extraction date					x
7. Sample analysis date		X		x	
Copy of chain-of-custody form signed by lab sample custodian		x		X	
Narrative summary of QA or sample problems provided		х		x	

QA - quality assurance

#### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

# 1.2 ORGANIC ANALYSES (VOCs)

Repo No	orted	Accei	ntabla	N.T. 4
No		Acceptable		Not
	Yes	No	Yes	Required
	х		Х	
	X		x	
				x
				x
	x		x	
	X		X	
	X		x	
				x
				x
				x
	X		X	
				x
	X		X	
	X		X	
	X		X	
				x
	No	x x x x x x x	x x x x x x x x	x x x x x x x x x x x x x x x x x x x

VOCs - volatile organic compounds %R - percent recovery

%D - percent difference %RSD - percent relative standard deviation

RRF - relative response factor RPD - relative percent difference

# Comments:

Performance was acceptable without exception.

# 2. SUMMARY AND DATA QUALIFIER CODES

#### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)	
VOC				
None				<u></u>

Jane Disher

VALIDATION PERFORMED BY:

VALIDATION REVIEWED BY SIGNATURE:

Pages 6/18

# **Data Validation Checklist for 0602660B**

Project Name:

Bally,PA

Project Number:

NP000597.00006.0006

Sample Date(s):

2/28/06

Sample Team:

Philadelphia Field Team

Matrix/Number of Samples: Air/ 1

Air / 1 Duplicates/ 0

Trip Blanks / 0 Field Blanks/0

Air Toxics

Analyzing

samples

180 Blue Ravine Road Suite B

Laboratory:

Folsom, CA 95630

Laboratory.

Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15

Laboratory Report

Job Number: 0602660B

Dated: 3/13/06

#### 1. ANALYTICAL DATA PACKAGE DOCUMENTATION

#### 1.1 GENERAL INFORMATION

	Performance					
	Reported		Acceptable		Not	
	No	Yes	No	Yes	Required	
1. Sample results		X		X	<u> </u>	
2. Parameters analyzed		X		X		
3. Method of analysis		X		X		
4. Sample collection date		X		X		
<ol><li>Laboratory sample received date</li></ol>		X		X		
6. Sample preparation/extraction date					x	
7. Sample analysis date		x		x		
Copy of chain-of-custody form signed by lab sample custodian		X		X		
Narrative summary of QA or sample     problems provided		х		X		

QA - quality assurance

#### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

### 1.2 ORGANIC ANALYSES (VOCs)

		Performance				
	Reported		Acceptable		Not	
_	No	Yes	No	Yes	Required	
1. Holding times		Х		Х	-	
2. Blanks						
A. Method blank		X		x		
B. Field blanks					x	
C. Trip blanks					x	
3. GC/MS Instrument performance check		X		X		
4. Initial calibration RRF's and %RSD's		X		X		
5. Continuing calibration RRF's and %D's		x		X		
6. Matrix spike (MS) %R					x	
7. Matrix spike duplicate (MSD) %R					x	
8. MS/MSD precision (RPD)					x	
9. Laboratory control sample (LCS) %R & RPD		X		X		
10. Laboratory duplicate precision					x	
11. Surrogate spike recoveries		X		X		
12. Internal standard retention times and areas		X		x		
13. Compound identification and quantitation		x		X		
14. Field duplicate comparison					x	

VOCs - volatile organic compounds %R - percent recovery

%D - percent difference RRF - relative response factor %RSD - percent relative standard deviation RPD - relative percent difference

### Comments:

Performance was acceptable without exception.

### 2. SUMMARY AND DATA QUALIFIER CODES

### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)	
VOC				
None				

VALIDATION PERFORMED BY:

VALIDATION REVIEWED BY SIGNATURE:

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### **Data Validation Checklist for 0603026**

Project Name:

Bally ,PA

Project Number:

NP000597.00006.0006

Sample Date(s):

2/28/06

Sample Team:

Philadelphia Field Team

Matrix/Number of Samples: Air/ 4

Air / 3
Duplicates/ 1
Trip Blanks / 0
Field Blanks/ 0

Air Toxics

Analyzing Laboratory:

samples

180 Blue Ravine Road Suite B

Folsom, CA 95630 Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15

Laboratory Report

Job Number: 0603026

Dated: 3/14/06

### 1. ANALYTICAL DATA PACKAGE DOCUMENTATION

### 1.1 GENERAL INFORMATION

	Reported		Performance Acceptable		Not	
	No	Yes	No	Yes	Required	
1. Sample results		х		X		
2. Parameters analyzed		x		X		
3. Method of analysis		x		x		
4. Sample collection date		X		x		
5. Laboratory sample received date		X		X		
6. Sample preparation/extraction date					x	
7. Sample analysis date		х		х		
8. Copy of chain-of-custody form signed by lab sample custodian		х		x		
Narrative summary of QA or sample     problems provided	·.	x		x		

QA - quality assurance

### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

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### 1.2 ORGANIC ANALYSES (VOCs)

	D	Performance			Not	
<del>-</del>		Reported		otable	Not	
	No	Yes	No	Yes	Required	
1. Holding times		X		x		
2. Blanks						
A. Method blank		X		X		
B. Field blanks					x	
C. Trip blanks					x	
3. GC/MS Instrument performance check		X		X		
4. Initial calibration RRF's and %RSD's		X		x		
5. Continuing calibration RRF's and %D's		X		X		
6. Matrix spike (MS) %R					x	
7. Matrix spike duplicate (MSD) %R					x	
8. MS/MSD precision (RPD)					x	
9. Laboratory control sample (LCS) %R & RPD		X		X		
10. Laboratory duplicate precision					x	
11. Surrogate spike recoveries		X		X		
12. Internal standard retention times and areas		X		x		
13. Compound identification and quantitation		X		x		
14. Field duplicate comparison		х		x		

VOCs - volatile organic compounds %R - percent recovery %D - percent difference %RSD - percent relative standard deviation

RRF - relative response factor RPD - relative percent difference

### Comments:

14. Sample BAL-SV-05-022806 was replicated in the field and labeled BAL-SV-50-022806. The replicated data was acceptable.

### 2. SUMMARY AND DATA QUALIFIER CODES

### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)
VOC			
None			

VALIDATION PERFORMED BY:

VALIDATION REVIEWED BY SIGNATURE:

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### **Data Validation Checklist for 0603058A**

Project Name:

Bally ,PA

Project Number:

NP000597.00006.0006

Sample Date(s):

3/1/06

Sample Team:

Philadelphia Field Team

Matrix/Number of Samples: Air/ 1

Air / 1 Duplicates/ 0 Trip Blanks / 0 Field Blanks/0

Air Toxics

Analyzing

samples

180 Blue Ravine Road Suite B

Laboratory:

Folsom, CA 95630 Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15

Laboratory Report

Job Number: 0603058A

Dated: 3/15/06

Darfamaaaaa

#### 1. ANALYTICAL DATA PACKAGE DOCUMENTATION

#### 1.1 GENERAL INFORMATION

	Reported		Acceptable		Not	
	No	Yes	No	Yes	Required	
1. Sample results		Х		X		
2. Parameters analyzed		X		X		
3. Method of analysis		X		X		
4. Sample collection date		X		x		
5. Laboratory sample received date		X		X		
6. Sample preparation/extraction date					x	
7. Sample analysis date		X		X		
Copy of chain-of-custody form signed by lab sample custodian		х		x		
Narrative summary of QA or sample     problems provided		X		x		

QA - quality assurance

#### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

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### 1.2 ORGANIC ANALYSES (VOCs)

	D	Performance			NI - 4
-		Reported		ptable	Not
	No	Yes	<u>No</u>	Yes	Required
1. Holding times		X		X	
2. Blanks					
A. Method blank		X		X	
B. Field blanks					x
C. Trip blanks					x
3. GC/MS Instrument performance check		x		x	
4. Initial calibration RRF's and %RSD's		X		X	
5. Continuing calibration RRF's and %D's		x		X	
6. Matrix spike (MS) %R					x
7. Matrix spike duplicate (MSD) %R					x
8. MS/MSD precision (RPD)					x
9. Laboratory control sample (LCS) %R & RPD		X		X	
10. Laboratory duplicate precision					x
11. Surrogate spike recoveries		х		x	
12. Internal standard retention times and areas		X		X	
13. Compound identification and quantitation		X		x	
14. Field duplicate comparison					X

VOCs - volatile organic compounds %R - percent recovery

%D - percent difference %RSD - percent relative standard deviation

RRF - relative response factor RPD - relative percent difference

### Comments:

Performance was acceptable without exception.

### 2. SUMMARY AND DATA QUALIFIER CODES

### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)	
VOC		<del></del>	·	
None				

prave Dine

VALIDATION PERFORMED BY:

VALIDATION REVIEWED BY SIGNATURE:

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### **Data Validation Checklist for 0603058B**

Project Name:

Bally ,PA

Project Number:

NP000597.00006.0006

Sample Date(s):

3/1/06

Sample Team:

Philadelphia Field Team

Matrix/Number of Samples: Air/ 1

Air / 1
Duplicates/ 0
Trip Blanks / 0
Field Blanks/0

Air Toxics

Analyzing

samples

180 Blue Ravine Road Suite B

Laboratory:

Folsom, CA 95630 Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15

Laboratory Report

Job Number: 0603058B

Dated: 3/15/06

### 1. ANALYTICAL DATA PACKAGE DOCUMENTATION

### 1.1 GENERAL INFORMATION

		rmance				
	Reported		Acceptable		Not	
	No	Yes	No	Yes	Required	
Sample results		X		х		
2. Parameters analyzed		X		X		
3. Method of analysis		X		x		
4. Sample collection date		X		x		
5. Laboratory sample received date		X		x		
6. Sample preparation/extraction date					x	
7. Sample analysis date		x		x		
8. Copy of chain-of-custody form signed by lab sample custodian		Х		x		
<ol><li>Narrative summary of QA or sample problems provided</li></ol>		Х		X		

QA - quality assurance

#### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

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Newton, PA 18940

### 1.2 ORGANIC ANALYSES (VOCs)

		Performa Reported Accepta			Not	
	_	No	Yes	No	Yes	Required
1. Holding times		110	X		X	Required
2. Blanks			Λ.		Λ	
A. Method blank			х		х	
B. Field blanks			A		A	X
C. Trip blanks						x
3. GC/MS Instrument performance	e check		х		х	
4. Initial calibration RRF's and %			х		х	
5. Continuing calibration RRF's a	nd %D's		х		X	
6. Matrix spike (MS) %R						x
7. Matrix spike duplicate (MSD) %	∕₀R					x
8. MS/MSD precision (RPD)						x
9. Laboratory control sample (LCS	S) %R & RPD		X		X	
<ol><li>Laboratory duplicate precision</li></ol>	ı					x
<ol> <li>Surrogate spike recoveries</li> </ol>			X		X	
12. Internal standard retention time	es and areas		X		х	
13. Compound identification and o	quantitation		x		X	
14. Field duplicate comparison						x
VOCs - volatile organic compounds %R - percent recovery	%D - percent differen %RSD - percent relat		eviation	RRF RPD - relative pe	- relative respercent different	

### Comments:

Performance was acceptable without exception.

### 2. SUMMARY AND DATA QUALIFIER CODES

### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)	
VOC			· <del></del>	
None		<del></del>		

Dury Trous

VALIDATION PERFORMED BY:

VALIDATION REVIEWED BY SIGNATURE:

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### **DATA VALIDATION CHECKLIST**

Project Name:

Bally,PA

Air/4

Project Number: Sample Date(s):

NP000597.00006.0006 8/28/06 through 8/30/06

Sample Team: Matrix/Number of Abigail Faulkner

Matrix/Number Samples: Air/ 4 samples

Duplicates/ 0 Trip Blanks / 0

Field Blanks/0

Air Toxics

Analyzing

180 Blue Ravine Road Suite B

Laboratory:

Folsom, CA 95630 Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15 SIM

Laboratory Report

Job Number: 0609029B

Dated: 9/15/06

Derformence

### ANALYTICAL DATA PACKAGE DOCUMENTATION GENERAL INFORMATION

	Reported		Acceptable		Not	
	No	Yes	No	Yes	Required	
1. Sample results		X		Х		
2. Parameters analyzed		X		X		
3. Method of analysis		x		x		
4. Sample collection date		x		x		
5. Laboratory sample received date		x		X		
6. Sample preparation/extraction date					x	
7. Sample analysis date		x		x		
8. Copy of chain-of-custody form signed by lab sample custodian		x		x		
Narrative summary of QA or sample problems provided		X		x		

QA - quality assurance

#### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

9. Sample IA-A-1 (dup) was cancelled due to sample arrival at lab at ambient pressure.

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### ORGANIC ANALYSES VOCs

			Perfor	mance	
	Reported		Acceptable		Not
•	No	Yes	No	Yes	Required
1. Holding times		X		X	
2. Blanks					
A. Method blank		x		x	
B. Field blanks					Х
C. Trip blanks					x
3. GC/MS Instrument performance check		х		X	
4. Initial calibration RRF's and %RSD's		X		X	
5. Continuing calibration RRF's and %D's		X		x	
6. Matrix spike (MS) %R					х
7. Matrix spike duplicate (MSD) %R					X
8. MS/MSD precision (RPD)					x
9. Laboratory control sample (LCS) %R & RPD		X		X	
10. Laboratory duplicate precision					х
11. Surrogate spike recoveries		x	x		
12. Internal standard retention times and areas		x		x	
13. Compound identification and quantitation		x		x	
14. Field duplicate comparison					X
Cs - volatile organic compounds %D - percent differe	nce	RRF - relative response factor			

VOCs - volatile organic compounds

%D - percent difference

RRF - relative response factor

%R - percent recovery

%RSD - percent relative standard deviation

RPD - relative percent difference

### Comments:

11. The surrogate recoveries for 1,2-dichloroethane-d4 was outside of control limits in samples SS-A-2 and SS-A-6. However, all other blanks and spike recovery were within control limits. Therefore no qualification is required.

### DATA VALIDATION CHECKLIST SUMMARY AND DATA QUALIFIER CODES

### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)
VOC			
None			

Jain fort

VALIDATION PERFORMED BY:

Pages 3/3

### **DATA VALIDATION CHECKLIST**

Project Name:

Bally ,PA

Air/3

Project Number: Sample Date(s):

NP000597.00006.0006 8/28/06 through 8/30/06

Sample Team:

Abigail Faulkner

Matrix/Number of Samples: Air/3 samples

Duplicates/ 1 Trip Blanks / 0 Field Blanks/ 0

Air Toxics

Analyzing Laboratory:

180 Blue Ravine Road Suite B

Folsom, CA 95630

Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15 SIM

Laboratory Report

Job Number: 0609029C

Dated: 9/15/06

D . . . C . . . . . . . . . . .

### ANALYTICAL DATA PACKAGE DOCUMENTATION GENERAL INFORMATION

			Pertor	mance	
	Reported		Acce	ptable	Not
	No	Yes	No	Yes	Required
1. Sample results		X		Х	
2. Parameters analyzed		х		x	
3. Method of analysis		X		x	
4. Sample collection date		x		X	
5. Laboratory sample received date		X		х	
6. Sample preparation/extraction date					X.
7. Sample analysis date		X		x	
8. Copy of chain-of-custody form signed by		x		X	
lab sample custodian					
9. Narrative summary of QA or sample		X		x	
problems provided					

QA - quality assurance

### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

9. Sample IA-A-1 (dup) was cancelled due to sample arrival at lab at ambient pressure.

Pages

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Newton, PA

18940

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### **ORGANIC ANALYSES VOCs**

		Repo	orted	Accep	otable	Not
		No	Yes	No	Yes	Required
1. Holding times			Х		х	
2. Blanks						
A. Method blank			X		X	
B. Field blanks						x
C. Trip blanks						x
3. GC/MS Instrument performance	check		x		x	
4. Initial calibration RRF's and %R	SD's		X		x	
5. Continuing calibration RRF's an	d %D's		x		x	
6. Matrix spike (MS) %R						х
7. Matrix spike duplicate (MSD) %	SR .					x
8. MS/MSD precision (RPD)						x
9. Laboratory control sample (LCS	) %R & RPD		x		х	
10. Laboratory duplicate precision						X
<ol> <li>Surrogate spike recoveries</li> </ol>			X		x	
12. Internal standard retention time	s and areas		x		x	
13. Compound identification and quality	uantitation		X		х	
14. Field duplicate comparison			х		х	
OCs - volatile organic compounds R - percent recovery	%D - percent differen %RSD - percent relat			RRF - relative res RPD - relative pe	•	æ

### Comments:

14. Sample SS-A-1 was replicated in the field and labeled SS-A-1 (dup). The replicated data was acceptable.

### DATA VALIDATION CHECKLIST SUMMARY AND DATA QUALIFIER CODES

### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)
VOC			
None			

tuipa Issil

VALIDATION PERFORMED BY:

Pages

### DATA VALIDATION CHECKLIST

Project Name:

Bally,PA

Project Number:

NP000597.00006.0006

Sample Date(s): Sample Team:

10/12/06

Matrix/Number of

Chris Sharpe

Samples:

Air/2

Air Toxics

Analyzing

180 Blue Ravine Road Suite B

Laboratory:

Folsom, CA 95630 Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15 SIM

Laboratory Report

Job Number: 0610306

Dated: 10/24/06

### ANALYTICAL DATA PACKAGE DOCUMENTATION **GENERAL INFORMATION**

	Reported			mance ptable	Not
	No	Yes	No	Yes	Required
1. Sample results		х		X	
2. Parameters analyzed		x		x	
<ol><li>Method of analysis</li></ol>		X		x	
4. Sample collection date		x		x	
5. Laboratory sample received date		x		x	
6. Sample preparation/extraction date					X
7. Sample analysis date		X		x	
8. Copy of chain-of-custody form signed by lab sample custodian		x		х	
Narrative summary of QA or sample     problems provided		х		х	

QA - quality assurance

### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

ARCADIS, Inc.

Newton, PA

18940

6 Terry Drive, Suite 300

Tel: 267-685-1800 Fax: 267-685-1801

## ORGANIC ANALYSES VOCs

	Reported		Performance Acceptable		Not	
	No	Yes	No	Yes	Required	
1. Holding times		х		X		
2. Blanks						
A. Method blank		X		X		
B. Field blanks					x	
C. Trip blanks					x	
3. GC/MS Instrument performance check		x		X		
4. Initial calibration RRF's and %RSD's		x		x		
5. Continuing calibration RRF's and %D's		X		x		
6. Matrix spike (MS) %R					x	
7. Matrix spike duplicate (MSD) %R					x	
8. MS/MSD precision (RPD)					x	
9. Laboratory control sample (LCS) %R & RPD		x		x		
10. Laboratory duplicate precision					x	
11. Surrogate spike recoveries		X		x		
12. Internal standard retention times and areas		X		X		
13. Compound identification and quantitation		x		x		
14. Field duplicate comparison					x	

VOCs - volatile organic compounds %D - percent difference

RRF - relative response factor

%RSD - percent relative standard deviation

RPD - relative percent difference

### Comments:

Performance was acceptable without exception.

1) Information on Canister did not match sample information on COC. Information on canister was identified by ARCADIS as the correct data.

[%]R - percent recovery

### DATA VALIDATION CHECKLIST SUMMARY AND DATA QUALIFIER CODES

### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)	
VOC				
None				

plane When

VALIDATION PERFORMED BY:

### **DATA VALIDATION CHECKLIST**

Project Name:

Bally ,PA

Project Number: Sample Date(s):

NP000597.00006.0006 8/28/06 through 8/30/06

Sample Team:

Abigail Faulkner

Matrix/Number of Samples: Air/ 8

Air / 8
Duplicates/ 1
Trip Blanks / 0

Field Blanks/ 0

Air Toxics

Analyzing

samples

180 Blue Ravine Road Suite B

Laboratory:

Folsom, CA 95630 Phone: (916) 985-1000

Analyses:

Volatile organic compounds (VOCs) by USEPA method TO-15 SIM

Laboratory Report

Job Number: 0609029A

Dated: 9/21/06

### ANALYTICAL DATA PACKAGE DOCUMENTATION GENERAL INFORMATION

	Reported			mance ptable	Not
	No	Yes	No	Yes	Required
1. Sample results		x		x	
2. Parameters analyzed		X		X	
3. Method of analysis		X		x	
4. Sample collection date		X		x	
5. Laboratory sample received date		X		x	
6. Sample preparation/extraction date					x
7. Sample analysis date		X		X	
8. Copy of chain-of-custody form signed by lab sample custodian		x		х	
Narrative summary of QA or sample     problems provided		x		Х	

QA - quality assurance

#### Comments:

Field data, field notes, and sampling logs were not reviewed. An Arcadis Level IV validation was conducted on the data. Analytical data were validated in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (October 1999), the "USEPA CLP National Functional Guidelines for Inorganic Data Review", July 2002, and ARCADIS professional judgment.

9. Sample IA-A-1 (dup) was cancelled due to sample arrival at lab at ambient pressure.

Pages

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Newton, PA

18940

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### **ORGANIC ANALYSES VOCs**

	Performance				
	Repo	Reported		Acceptable	
_	No	Yes	No	Yes	Required
1. Holding times		x		x	
2. Blanks					
A. Method blank		х		X	
B. Field blanks					x
C. Trip blanks					X
3. GC/MS Instrument performance check		x		X	
4. Initial calibration RRF's and %RSD's		X		x	
5. Continuing calibration RRF's and %D's		x		X	
6. Matrix spike (MS) %R					X
7. Matrix spike duplicate (MSD) %R					X
8. MS/MSD precision (RPD)					X
9. Laboratory control sample (LCS) %R & RPD		x		х	
10. Laboratory duplicate precision					х
11. Surrogate spike recoveries		x		X	
12. Internal standard retention times and areas		x		X	
13. Compound identification and quantitation		x		X	
14. Field duplicate comparison					x
Cs - volatile organic compounds %D - percent differen	nce	RR	F - relative res	snonse factor	

VOCs - volatile organic compounds %R - percent recovery

%D - percent difference %RSD - percent relative standard deviation

RRF - relative response factor RPD - relative percent difference

### Comments:

Performance was acceptable without exception.

### DATA VALIDATION CHECKLIST SUMMARY AND DATA QUALIFIER CODES

### Job Number:

Sample ID	Analyte(s)	Qualifier	Reason(s)
VOC			
None			

VALIDATION PERFORMED BY:

Pages 3/3

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